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**Congress of the United States
Office of Technology Assessment**

REPRODUCTIVE HEALTH HAZARDS IN THE WORKPLACE

Contractor Documents

**Volume I:
Selected Ethical Issues in the Management of
Reproductive Health Hazards in the Workplace**

January 1986

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Reproductive Hazards in the Workplace: The Moral Issues, Ronald Bayer, Institute of Society, Ethics and the Life Sciences, The Hastings Center, Hastings-on-Hudson, New York

Reproductive Hazards in the Workplace: Ethical Issues in Risk Assessment and the "Right to Know", Ronald Bayer, Institute of Society, Ethics and the Life Sciences, The Hastings Center, Hastings-on-Hudson, New York

Reproductive Hazards in the Workplace: The Policy Options Before Congress, Ronald Bayer, Institute of Society, Ethics and the Life Sciences, The Hastings Center, Hastings-on-Hudson, New York

Reproductive Hazards in the Workplace: Ethical Issues in Discrimination and Job Termination, Tom L. Beauchamp, Applied Philosophy, Inc., Rockville, Maryland

Ethical Analysis of Legislative Option: Compensation for Reproductive Damage Resulting from the Workplace, James F. Childress, Department of Religious Studies, University of Virginia, Charlottesville, Virginia

Ethics, Risk Assessment and Reproductive Hazards, Thomas Murray, Institute for the Medical Humanities, University of Texas Medical Branch, Galveston, Texas

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**REPRODUCTIVE HAZARDS IN THE WORKPLACE:
ETHICAL ISSUES IN RISK ASSESSMENT AND THE "RIGHT TO KNOW"**

October 1984

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Submitted in Completion of Task II
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Moral Principles and the "Right to Know"

Increased awareness of the ways in which workplace exposure may produce negative consequences for the health of workers, for their reproductive capacity, for the viability of their fetuses and the well-being of their offspring has produced demands for the acknowledgment of the "right to know" about potential hazards. This right is generally understood to entail a correlative duty on the part of employers to notify workers of potential risks by providing relevant information in a manner that may be understood and acted upon.

Like the doctrine of informed consent in the medical setting, the right to know derives its fundamental moral force from the ethical requirement imposed upon us by the duty to respect individual autonomy. As in the clinical setting, such respect requires that individuals not be subjected to potential hazards without prior notification. Despite the similarity between the right to know doctrine in the workplace and that of informed consent in the clinical setting, there are important differences that need to be stressed.

Informed consent in the clinical relationship takes place in a relationship that is defined by trust. Despite the fiduciary features of the doctor-patient relationship, however, contemporary ethical discussions hold that the patient must be given information that would permit decisions that reflect interests, needs and perceptions that might differ from those of the care giver. In the researcher-subject relationship where there exists a greater likelihood of a conflict of interests, the doctrine of informed

consent is viewed as a protection against the unwarranted use of human beings for ends over which they have no control. In the context of the workplace, the right to know is even more vital. Though employers may share with their employees a long-term interest in a healthy workforce, their immediate interests may often be in conflict. The revelation of the existence of potential workplace hazards to reproduction, for example, could increase the cost of production if workers either refused to submit to continued exposure, or if they were to demand increased compensation for their risky assignments. Where the immediate interests of the two parties may be in such sharp conflict, the moral necessity of providing adequate information takes on a special force.

Among the important functions of the informed consent doctrine in the clinical setting is the creation of the opportunity for the patient or subject to refuse to partake in potentially harmful encounters. Thus a patient informed of enhanced risk that might attend the commencement of a therapeutic course has the opportunity to refuse treatment. A research subject when confronted with the possible dangers of embarking upon an experimental procedure has the opportunity to refuse to become a subject. The freedom to say "no" may, however, be circumscribed in important ways by a range of factors including: the sense of desperation that may accompany a critical illness; the desire to entrust oneself to the care and concern of a knowledgeable clinician; fear of alienating one's own physician.

Respect for the autonomy of workers who may be exposed to reproductive hazards in the workplace requires that they be warned, so that they may choose to act in ways reflective of their own values

and interests. Yet, the relative freedom of workers to refuse to accept employment with potentially elevated levels of risk may be limited in ways that the model of autonomous behavior based on full disclosure does not suggest. Prevailing market conditions, including particular problems faced by women workers, may make it difficult for those who are provided with information under the doctrine of the right to know to seek out safer employment.

But if the right to know may serve an only limited function in enhancing the autonomy of workers faced with reproductive hazards, it may be of greater relevance to the principles of nonmaleficence and justice. Male and female workers seeking to protect their reproductive health may, as a result of disclosure about reproductive hazards, attempt to impose upon employers a duty to inflict no harm, to remove the potential sources of harm. In short, they may seek to hold employers to a standard required by the moral requirements on nonmaleficence. They may do so as workers through collective bargaining, as citizens pressing for regulatory activity by government agencies, or as litigants seeking redress.

Two features of the moral claim of justice are also involved: on a procedural level justice requires that all affected parties in a given situation be provided with an opportunity to participate meaningfully in decisions affecting their life chances and opportunities. In the context of reproductive hazards in the workplace this would necessitate providing male and female workers with the information regarding risks to which they might be exposed. In addition to this procedural dimension of justice a substantive element is also at stake. Distributive justice requires

that the benefits and burdens of a given arrangement be equitably borne . However the burdens and benefits associated with altering the nature of workplace exposure are ultimately distributed, it is clear that providing workers with information about the reproductive health risks associated with their job will be a prerequisite for arriving at a just decision.

While the right to know is central to the protection of the interests and moral claims of workers, its bearing on the protection of the interests of the fetus that might be harmed by hazardous substances as a result of maternal or paternal workplace exposure, or to the health and well-being of the offspring of exposed workers, is more complex. To the extent that parental autonomy is given pre-eminent status as a moral principle, the knowledge imparted to workers will be viewed as providing the basis for their own balancing of the claims of justice and nonmaleficence in regard to their potential offspring. Male and female workers would thus need information about reproductive hazards so that they might fully consider the significance of such data for their moral obligation to their potential children. To the extent that the protection of the fetus, at whatever stage of development, or the protection of potential offspring are given preeminence, the autonomous preferences of workers may be overridden. Under such circumstances, third parties may act to protect the interests of those who have no voice of their own. Here the right to know will not serve to enhance the autonomy of workers. Rather, it will provide workers with information necessary for an understanding of why their autonomy has been subjected to limitation.

The Right to Know: Practical Implications

Because the doctrine of the right to know is so compatible with the most basic assumptions in our society regarding the respect that is due competent adults, it has, at least in the abstract, received broad approval. But this approval in general masks considerable disagreement over the extent and nature of the right to know and over how conflicts between that right and other social interests and employer concerns are to be resolved.

In part, the dispute over the meaning of the right to know is a result of conceptual ambiguity. Thomas O. McGarity has sought to clarify the issues involved by examining the duties that that right may impose upon other parties, primarily employers, when it is invoked¹. He has found four sets of duties correlative to the worker's right to know. They are presented here in order of increasing burden to employers and/or society more generally.

1. The duty of employers to reveal medical information and data related to workplace toxicity already in their possession;
2. the duty of employers to communicate information through labeling of toxic substances and workplaces as well as by the conduct of education programs;
3. the duty of employers to obtain information from other appropriate sources, e.g., the scientific literature;
4. the duty of employers and government to produce new information through formal or informal research.

At the least burdensome level, following McGarity's formulation, employers would have a duty to notify workers that they were working with substances that were known or thought to pose a risk to

'reproductive capacity, fetal viability, or the health of workers' offspring. Especially important would be the provision of data contained in the employer's medical records that might reveal evidence of reproductive risks. Even at this level, however, controversy exists.

The Right to Know and Access to Medical Exposure Records

While it is now generally conceded that in principle workers have a right to consult their own medical records, considerable resistance to this most basic element of the right to know has not been unusual. Greater resistance has existed when unions have sought access to the aggregate data contained in the records held by employer medical departments or to the medical records of individual workers, even when consent for disclosure had been obtained. The refusal to make such information available has been justified on two grounds. First, it has been claimed, paternalistically, that making such information available would not serve the medical interests of the individual workers whose records would be "violated." Second, it has been argued that the disclosure of medical and exposure records would involve a potential risk to the preservation of trade secrets.

Progress in facilitating workers' access to their own medical and exposure records has been made in the past few years, largely as a result of collective bargaining agreements, state and federal legislation and regulations, and decisions by the National Labor Relations Board. It was in 1978 that OSHA published its proposed rule, "Access to Employee Exposure and Medical Records,"² designed to remedy a situation in which the denial of unrestricted access on

the part of workers to medical exposure records was "commonplace, if not the universal practice in industry." Two years later, after great controversy, a final OSHA rule was issued. Such a standard was needed, OSHA asserted, because only a guarantee of access would "enable workers to play a meaningful role in their own health management." OSHA held that "sound public policy dictates that workers be afforded a central role in the detection and solution of health problems, as there are no assurances that anyone else will protect their health with equal vigor or determination."

A second more recent source of support for access on the part of unions to occupational health data, that had until recently been viewed as employer property, has come from the National Labor Relations Board. In April 1982, in three related decisions involving the Oil, Chemical and Atomic Workers Union and the Minnesota Mining and Manufacturing Company, Borden Chemical, and Colgate Palmolive Company, the NLRB ruled that an employer's refusal to share data on occupational health and safety with a bargaining agent for workers represented an unfair labor practice.

Clearly operating in both the OSHA standard and the NLRB decisions was a recognition that respect for the autonomy of workers, the importance of the principle of nonmaleficence and the demands of justice required employers to share medically relevant information with their workers.

The Right to Know and the Labeling of Toxic Substances

For workers who fear that they may be exposed to substances that pose some risk to reproductive health, the right to know has meant more than that employers have a duty to share their exposure

and medical records. As important has been the demand that they label potentially toxic substances in such a manner as to make clear the nature of the dangers entailed. Considerable dispute remains over the nature of this duty.

Those who speak on behalf of workers have tended to argue that employers have an obligation to undertake extensive and informative labeling. Opposition to such an interpretation of the right to know has centered on two facts, both involving burdens to the employer. First, it has been argued that the cost of labeling all substances to which workers may be exposed would be substantial. In addition to such costs, it has been argued, are the potential financial consequences that could attend the revelation of trade secrets through the labeling process.

OSHA's "Hazard Communication Standard," issued on November 25, 1983,³ attempts to meet the demand for full disclosure while remaining attentive to employer concerns about trade secrets. The deeply contested nature of the dispute regarding the relative merits of the claims of those demanding full disclosure in the name of the workers' right to know and those seeking to protect the interests of employers is revealed in the reaction to this new OSHA standard. For some it represented a laudable advance; others saw in it a failure to fully acknowledge the moral claims of exposed workers.

The conflict between the "workers' right to know" and the employer's interest in preserving trade secrets is among the most complex matters raised by efforts to extend the capacity of employees to act on their own behalf in matters of occupational health. In general, the societal recognition of the protection of

trade secrets stems from the interest in encouraging innovation. Recognizing trade secrets and applying sanctions against those who would steal or reveal trade secrets represents an incentive to those who advance the social good through the assumption of the risks associated with new ventures.

On both state and federal levels employers confronted with right-to-know legislation and regulations have argued that their property rights as well as the social interest in innovation would suffer great damage were workers and potentially "unfaithful employees" given access to information about the particular substances with which they worked.

From an ethical point of view it is necessary to ask whether the two moral interests, e.g., the worker's right to know and the employer's interest in trade secrets, are comparable.

In answering that question it is first necessary to address an empirical matter. Is it true that the widespread adoption of thoroughgoing right-to-know regulations would lead to extensive abrogation of trade secret protections? It is, of course, too soon to answer that question. Some have argued, on the basis of a reading of industrial history, that both patent law and trade secrets statutes have been effective in the past. They therefore argue that there is little reason to believe that they would be ineffective in the future. Others have claimed that the cost of enforcing trade secret protection is too high and that therefore they represent an ineffective mechanism for the protection of the interests of employers.

Given the uncertain impact of making information bearing on trade secrets available to workers, it is necessary to balance the interests at stake. The social interest in protecting workers and their offspring from reproductive harms—represented by the principle of nonmaleficence—the workers' interest in having autonomy respected and the importance of maintaining a just distribution of burdens in the workplace are weighty arguments against which employer interests in trade secrets must be compared.

The Right to Know about Potential Reproductive Hazards:

Concluding Remarks

What limited progress has been made in extending the right to know to workers has primarily affected those already employed. A recent study failed to find a single instance where applicants for employment were apprised of potential health risks before accepting new jobs.⁴ What is so crucial about this finding is the weight that is given to the presumption of informed worker decisionmaking in classical economic formulations. Autonomous workers are presented in such models as entering the market where they sell their labor to employers with a full appreciation of the burdens to be assumed in exchange for wages. If in fact workers are not given relevant information when taking on new employment their choices cannot be deemed informed. Some would go further and would argue that the choices cannot be deemed free.

The thrust of the previous discussion has been on the significance of providing information to workers so that they might make informed choices about the risks to which they might subject themselves and their potential offspring. There is some danger that

this analysis will be used to imply that as long as warnings are clearly posted, and as long as workers voluntarily enter conditions of employment free of deception, the social issues posed by reproductive hazards in the workplace would be settled. There are, however, other moral considerations at stake. The principles of both nonmaleficence and justice might well dictate that a given level of risk is unacceptable from a societal point of view—regardless of the existence of employers willing to offer and employees willing to take on such hazards. The reproductive health of workers, the viability of the fetus that might be harmed through paternal or maternal workplace exposure; the well-being of the potential offspring of workers might all be deemed sufficiently important to override the otherwise dominant moral status of the principle of autonomy. Certainly, a reading of OSHA's General Duty Clause as well as the history of workplace regulation suggests that there is a moral consensus that the right to know is no substitute for other substantive principles of workplace protection.

In the context of medical experimentation informed consent comes into play only when the risks associated with a potential advance have been reduced to their lowest level. Informed consent is not, therefore, a substitute for controlling risks but is rather a complement. Similarly, in the workplace the right to know is not a substitute for reducing the level of reproductive hazards but can serve to complement efforts at risk reduction. Where the risks are unknown or where their certainty is difficult to determine, then and only then, would it seem wise to permit the principle of autonomy to

determine which individual workers will choose to enter certain workplace settings after having been informed about the risks they might face.

The Right to Know and the Duty to Discover

To this point, our discussion has centered upon the right of workers to have access to knowledge already in the possession of their employers and the correlative duty of employers to convey that information in a manner that would enhance the capacity of their employees to act to defend themselves. These matters have received considerable attention in the literature and in the arena of public policy as well. Less well developed are the issues surrounding Thomas O. McGarity's final two duties derived from the right to know: the duty of employers to seek out empirical medical and scientific studies regarding potential risks to their workers; the duty to initiate research that might uncover workplace-related hazards.

Given the current state of uncertainty about reproductive hazards in the workplace, there can be little doubt about the potential significance of research that might uncover the consequences of exposure to substances that could negatively affect reproductive capacity, the viability of the fetus and health of workers' offspring. Especially vital is research into the still poorly understood ways in which workplace exposure can affect the reproductive health of male workers.

To state that such research is crucial, and that it is a component of the right to know is to assert that there is a correlative duty to initiate and fund such investigations. But just

how extensive is this duty and who bears the primary responsibility for undertaking such work?

An analysis of the duty to undertake research into reproductive hazards in the workplace must begin with an appreciation of how burdensome the cost of such studies might be for employers. This was precisely the issue that aroused so much concern when public comment was solicited on the "Interpretative Guidelines on Employment Discrimination and Reproductive Hazards" issued by the Equal Employment Opportunity Commission and the Office of Federal Contract Compliance Programs in 1980.⁵ Those guidelines would have required that employers seeking to bar women from certain work settings undertake research to determine the extent to which the reproductive health of male workers might also be affected. Repeatedly, small, medium and even relatively large firms argued that the cost of such research would be prohibitively high.

Certainly, given the pattern of employment in the United States, the capacity of individual employers to bear the cost of research, the need to avoid duplication of efforts and the need to rationally organize the deployment of scientific resources, it is clear that it will be necessary to arrange for systematic and coordinated efforts. The precise distribution of the burdens to be assumed by both private and public sectors needs thorough discussion at the policy level. Trade associations might play a vital role; so, too, might the National Institute of Occupational Safety & Health. Whatever decisions are made, it will be necessary for them to occur within a framework founded upon a recognition of the right

of workers to know the risks to which they may be subjected, the societal interest in nonmaleficence and the requirement that the cost of eliminating the burdens of reproductive hazards be guided by principles of distributive justice.

Notes

- 1 Thomas O. McGarity, "OSHA and the Worker's Right to Know," Hastings Center Report (August 1984), pp. 38-45.
- 2 Department of Labor, Occupational Safety and Health Administration, "Access to Employee Exposure and Medical Records," Federal Register 35212 (1980).
- 3 Federal Register 53280 (1983).
- 4 Mary Melville, "Risks on the Job: The Worker's Right to Know," Environment (November 1981), p. 12.
- 5 Federal Register 7514 (1980).

**REPRODUCTIVE HAZARDS IN THE WORKPLACE:
THE MORAL ISSUES**

June 1984

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I. Introduction

In the past decade, the impact of workplace exposures on the reproductive health of workers has emerged as a central concern for those committed to fashioning policies and practices intended to reduce the toll of occupation-related morbidity. The problem of reproductive health shares many of the features associated with efforts to prevent occupationally-linked diseases in general. But there are also some special characteristics of the reproductive health problem that must be acknowledged and addressed.

In common with other occupational diseases, harms to reproduction are complex entities often lacking a clear and unambiguous correspondence with an occupational exposure. Data indicating a relationship between workplace and disease-related endpoint are almost always probabilistic in nature. Depending on the strength of the effect and the background level of the endpoints, the relationship may be difficult to demonstrate in general, and impossible to prove for an individual case. A key feature then is uncertainty at several levels: uncertainty about the existence of any relation between workplace exposure and reproductive disorder; uncertainty about the strength of the relationship, and the consequent level of risk; uncertainty about the cause of any specific case of reproductive disorder. We can neither deny nor escape the uncertainty inherent in such systems; yet we are obliged to formulate fair and reasonable public policies in the face of multiple uncertainties. In this respect, our efforts to deal with work-related reproductive hazards are similar to our attempts to deal with other work-related diseases.

In three other respects, though, reproductive hazards raise new morally-relevant problems. For one thing, disputes over the existence

and management of reproductive hazards have focused upon women workers who have been made vulnerable to some of the negative consequences of special protective interest. A second complication is the introduction of a third party into the problem: the fetus, who may or may not develop into a child, and who in any case cannot be asked for his or her consent to the risks which may be taken. The third complication is the very sensitive nature of the topic of reproduction. These matters are as intimate as any human concern. The facts which may need to be established may include a person's childbearing plans, sterility, or the existence of a pregnancy. The tests which might be used could include gynecological examinations or obtaining sperm samples. In other words, the area of reproductive plans, capacities and harms is among the most private and protected of all the areas of our lives. Securing information about these issues raises very important concerns about protecting individual privacy.

II. The Parties at Risk

A. Female Workers

Much of the scientific literature has focused solely on the risks to reproduction posed by the exposure of women in toxic settings. In part, this emphasis is a function of the greater ease that attends tracing some of the endpoints of the female reproductive process. More important is the culturally informed definition of the research agenda. Since women have been viewed as the primary agents of procreation, it has seemed quite natural to focus scientific investigations upon the way in which their exposure raises questions of reproductive health.

As a result of socially informed assumptions and biologically-based considerations, efforts have been made to protect female workers from exposure to toxic substances believed to pose some risk to their reproductive health. Typically, such efforts have taken the form of exclusionary practices justified in terms of the health of potential offspring rather than in terms of the woman's capacity to conceive.

Major corporations throughout the country have adopted policies that bar all fertile women, regardless of their procreative intentions, from jobs that might bring them into contact with fetotoxic or teratogenic substances. The impact on the employment opportunities available to women seeking to break the male monopoly on blue collar jobs is difficult to determine. Nevertheless, concern about the potential impact of such "protective" efforts has moved women's groups, civil rights organizations, and some trade unions to protest vigorously against practices that would define a woman's social role in terms of her biological capacities. Widely reported instances of women choosing sterilization in order to protect their employment status have provided a dimension of urgency to such protest.

Apart from risks to fetuses, women face dangers to their own reproductive capacities, for example, to their ability to conceive. Furthermore, it makes sense to consider dangers to a fetus as risks to the women themselves. These risks may be direct, as for example the risk to a woman's health posed by a spontaneous abortion, or as indirect in the sense that a woman may suffer psychological damage and a diminishing of life prospects upon the birth of a dead or damaged baby.

Finally, women are at risk of economic loss and discrimination in the face of policies which restrict job opportunities on the grounds of reproductive hazards.

B. Male Workers

Increasingly, research and less systematic reports have noted the vulnerability of male workers to reproductive harm. When substances known to have adverse effects on women's reproductive health were eventually investigated in men, adverse effects were found there as well. Exposure to some toxic substances has been demonstrated to affect the capacity of men to engage in sexual intercourse, and to cause sterility resulting from the reduction of sperm count. Changes in the morphology and motility of such cells with direct implications for the possibility of conception have also been noted. Mutagens are now known to affect the male sperm cells in ways that can compromise the viability of the embryo and fetus. Finally, male workers may "bring home" toxic substances on their bodies, thus affecting their spouses who would otherwise not have been exposed to reproductive harm.

As was the case in the discussion of women workers, the indirect harm to male workers caused by the birth of a dead or damaged child should also be acknowledged.

C. The Fetus

It is not only the reproductive capacity of male and female workers that is at issue. Were that the case, the moral problems--though troubling--would be far less complex. It is well known that the exposure of workers to mutagenic and teratogenic substances not only compromises fetal viability, but may produce live offspring who bear the burden of workplace toxicity. Most concern in this regard has focused on the maternal contribution to such reproductive outcomes. Increasingly, the female dominated perspective has given way to an acknowledgment of the paternal contribution to the health of offspring. There is even some suggestive evidence that semen may act as a route for the excretion of teratogenic substances. When absorbed by pregnant women via the vaginal mucosa during intercourse, fetal health and development can be affected.

For those who view the embryo from the moment of conception as possessing moral rights to survival, reproductive toxicity in the workplace poses a grave problem. Even those who do not acknowledge the existence of such embryonic and fetal rights, however, recognize that for parents the challenge to fetal viability and the possibility of spontaneous abortion represents a serious loss.

Even more certain are the moral claims of the fetus which is carried to term. The prospect of ill health, of developmental anomalies associated with workplace exposure, suggests the need for remedial action designed to protect the unborn from harm. The vulnerability of the fetus thus stands as a challenge to those responsible for workplace health and safety.

The ethical problems surrounding the fetus have four special features. First, the fetus is voiceless and unconsenting. That is to

say, the fetus can have no say in decisions affecting its well-being, and cannot be assumed to consent to whatever risks it may encounter.

~~Second, the welfare of the fetus~~ who eventually becomes a live-born child is ineluctably tied to the welfare of its parents. A fetus whose parent is denied work because of some reproductive hazard is not necessarily better off for that reason. The parent may be forced to accept even riskier employment elsewhere, or be unemployed with all the financial and psychological consequences associated with unemployment.

Third, the fetus has, at this point in our society, been an ambiguous moral status. There is no need here to restate the multitude of views expressed in the abortion debate. It is enough to point to an apparent paradox: a grievous, but non-fatal injury to a fetus who is then born and lives with severe life-long disabilities is an unambiguous wrong. Yet a fatal injury to the same fetus, resulting in an early spontaneous abortion, is not unambiguously or universally regarded as a grave wrong.

Fourth, most observers regard the maturing fetus as having an evolving moral stature. That is, our propensity to regard the fetus as deserving protection and being under the care of the moral community grows stronger as the fetus approaches term. The Supreme Court's major abortion decision, *Roe v. Wade*, implies that by the third trimester the welfare of the fetus is an appropriate concern of the state; whereas in the first trimester no such grounds for state involvement exist.

Efforts to give due weight to the moral concerns about fetuses in the matter of work-related reproductive hazards are complicated by these four factors. A final complication is that for some substances, lead--for example, it is alleged that the fetus is endangered at an exposure level below the threshold of danger for an adult worker.

III. Moral Principles at Stake

The enactment of the OSH Act in 1970 represented the culmination of a long and bitter struggle to make the health and safety of American workers a matter of national concern. Though the product of a legacy of controversy, the Act reflected a growing moral consensus that employers had the primary responsibility for protecting their workers from eliminable risks. The General Duty Clause of the OSH Act thus states that "each employer shall furnish to each of his employees employment and a place of employment which is free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees." In addition, with the passage of the Act the federal government assumed responsibility for enacting and enforcing regulations designed to assure workers that those for whom they worked adhered to the broad mandate of the General Duty Clause.

The legacy of controversy has been reflected in the conflict-ridden, fourteen-year history of the Occupational Safety and Health Administration. Efforts to arrive at standards have produced repeated clashes over the appropriate level of protection, the costs of risk reduction, and the very concept of "acceptable" risk. Each of these clashes has reflected the conflicting interpretations of the moral obligations of employers and of the moral rights of workers. Each of these clashes has, in turn, been fueled by the conflicting interests of those who would be affected by the promulgation of regulations, as well as those who would be affected by a decision to forego such intervention.

To get at the underlying moral issues, it is useful to discuss them under three major headings, corresponding to three fundamental moral principles: nonmaleficence, autonomy, and justice.

III-A. Nonmaleficence

In its most fundamental form, nonmaleficence is the duty not to inflict harm. Its application to the context of reproductive hazards and work seems, at first glance, obvious: do not inflict harm on workers, or fetuses, including harm to reproductive capacities. The importance of this duty should not be slighted. However, it must be acknowledged that other moral principles, such as autonomy and justice, can complicate matters, especially where the harm is a probability, not a certainty.

Honoring autonomy may require allowing people to accept risks of harm. Justice may require a balancing of benefits and burdens, including among the burdens risks of harm. Nonetheless, the duty to avoid inflicting harm is a fundamental and powerful duty. The kinds of harm that might be caused female workers, male workers, and their offspring have already been noted above. Determining who it is that actually caused the harm can be a very contentious undertaking.

III-B. Autonomy, Privacy and Choice

The moral principle of autonomy imposes the dual moral obligation not to interfere with the freely chosen actions of others and to respect their personhood and beliefs. The more central the aspects of a person's life, the more powerfully does the principle of autonomy apply. Work and sex (including decisions about procreation) are profoundly important parts of a person's life plan and projects. Respecting a person's chosen actions in the realms of work and sex would seem then to be an especially important aspect of respect for autonomy.

In practice, there appears to be little opposition to permitting individual workers to accept limited risks to reproductive health that concern the worker alone. The opposition arises when the health of a third party--the fetus--is endangered. Precisely how the various moral concerns that intersect at this nexus are to be disentangled is a moral conundrum society has not yet been willing to address. Nonetheless, it is possible to distinguish between a worker's right to accept risks to herself or himself from that same worker's right to accept risks to his or her fetus. Another distinction is between risks to a fetus likely to result in life-long harm, and risks to a fetus which will not result in life-long harm, due to spontaneous or elective abortion.

Privacy is commonly seen as an aspect of, or derivable from, autonomy. Two elements of privacy are the control of information about oneself, and the right to refuse attempts to extract information about oneself, including medical tests. Questions about a worker's reproductive capacities and plans may easily become unwarranted intrusions upon privacy. Tests for pregnancy, or those requiring sperm samples, might well be seen as invasions of privacy. In general, questions about or tests of a person's reproductive health, capacities or intentions are likely to be regarded as among the most intrusive and objectionable.

Like nonmaleficence, autonomy and privacy are important moral values, but simply invoking them does not solve complex practical dilemmas involving conflicts of values and interests. Nonetheless, their importance must not be minimized. Social policies that preserve autonomy and privacy, while preventing harm, are clearly preferable to those policies that fail, on any or all of these counts.

III-C. Justice

The third moral principle is justice. In the context of the workplace, the actual question of justice is: How shall the burdens

associated with occupational disease be borne, e.g. what effort and costs shall be required of employees and society more generally? What burdens shall workers be asked, either implicitly or explicitly, to bear? The problem of justice in work-related reproductive hazards takes the form of three oppositions:

- (1) Conflicts between workers and employers;
- (2) Conflicts between the rights of female workers, equal treatment, and the potential requirements of occupational health;
- (3) Conflicts between parents and fetuses.

Working out the particulars of what justice, nonmaleficence, and respect for autonomy require in a specific situation depends in the first instance upon a careful elucidation of the factual contexts and the interests and dependencies of the various parties. To that elucidation we now turn.

IV. The Context of Reproductive Hazards in the Workplace

a. Avoiding Harm

While there is no question that the reproductive capacity and health of workers falls within the purview of OSHA and that the protection of the procreative function of both male and female workers is an obligation of employers, there is considerable controversy about the level of commitment that such an obligation requires. Those who argue on behalf of the interest of workers have pressed for exposure standards that would acknowledge the vulnerability of both men and women to reproductive harm. They have insisted that, if need be, extensive alterations in the process of production be undertaken to prevent such injury. When necessary, they have asserted, efforts should be made to find substitutes

for toxic substances that cannot adequately be controlled. Finally, as a matter of last resort, they have called for the use of protective equipment and garments.

Thus, from the perspective of workers, the right to reproductive health generates a correlative duty on the part of employers to expend resources necessary to prevent harm to reproductive capacity. In addition, the right to reproductive health has been held to generate an obligation, recognized in OSH Act, for the federal government to enact regulatory standards that would enforce employer duties in this regard. Nonmaleficence, as an ethical principle, thus is viewed as setting the standard against which both employer and government behavior must be judged.

Employers have viewed the situation differently. While acknowledging the necessity of protecting the reproductive health of workers, they have asserted that the cost of such efforts must be balanced against the potential benefits to be gained by the expenditure of resources. In part, the employer's perspective must be viewed in the context of empirical uncertainty surrounding the reproductive impact of exposure to workplace processes and substances. Unlike workers who have tended to stress the reduction of risk to the lowest practicable levels, employers have asserted that since absolute reproductive safety is a chimera, the decision to enact restrictive regulations that might provide only marginal increments in protection of reproductive capacity requires a cost-conscious evaluation. Against the principle of nonmaleficence, those who argue for a more limited commitment to the reduction of risks to reproductive capacity have asserted that an inappropriately large expenditure to reduce or eliminate hazards to reproduction could well divert resources from other uses central to employer viability. This is an issue better discussed under the heading of justice.

While the discussion of potential risks to reproductive capacity has centered upon the obligation of employers to their workers, the potential for workplace-induced harm to the fetus and to the potential offspring of workers has generated a more complex set of problems. Here the vulnerable status of a third party has forced a consideration of the extent to which parental obligations to potential offspring must take precedence over the more immediate economic needs of workers.

There is general agreement that parents have an obligation to protect their children from harm, to nurture them, to provide the circumstances for their growth and development. Child neglect and abuse laws reflect the broad-based moral consensus on this matter and indicate the societal determination to impose sanctions on those parents who fail to meet their obligations to their children. The situation is more complex with regard to parental and especially maternal obligations to their yet unborn children and to their potential offspring.

Those who view moral life and rights as beginning at conception make no distinction between parental obligations to their children and to the embryo-fetus in the course of development. Though the specific content of the duties to avoid harm and to provide the circumstances of healthy development are obviously different in the prenatal and postnatal periods, the basic moral obligation does not change. But even those who hold to this position must face the very different levels of certainty regarding the degree of risk, the likelihood of harm, the necessities of growth and development during pregnancy and after birth.

Given the level of uncertainty, it is difficult to determine the precise level of caution that ought to be established as an appropriate standard by which to judge parental behavior. On the one hand, it could be held that any exposure whatever the risk would constitute a reckless

act. A less extreme position might hold that potential parents should be alert to the possibility of harm to the embryo-fetus, but that, given the extent of uncertainty, no holding of strict moral liability would be reasonable. Holding the first position, that any risk is impermissible, raises nonmaleficence to an absolute level. We must acknowledge that moral principles may be in conflict here, and that the autonomy of a worker deserves consideration alongside duties to avoid harm.

For those who do not view the moral rights of the embryo and fetus as equivalent to the liveborn child, the potential harm and even death that might occur as a result of parental exposure in the workplace is viewed as a harm to the worker-parents, their injury. But for those who hold to this perspective, a distinction is nevertheless necessary between the moral obligations to act in such a way to avoid spontaneous abortion (which they do not necessarily accept) and the obligation to act in such a way as to avoid risks to the fetus that will be carried to term. For those who do not regard the embryo or early-term fetus as a person, a harm to either which does not affect the fetus at the point when personhood is fully present is not subject to the strictures against harms to persons. Those harms which will affect those invested with personhood, regardless of when in the developmental process they occur, are, however, to be avoided. The right of a child to be protected against neglect and abuse imposes upon parents obligations to be cognizant of risks, to avoid them when possible.

Where the prospect of harm is certain, the moral obligation of parents becomes less ambiguous. But with the uncertainties that surround the prospect for harm, the extent to which parents must be held morally liable is difficult to determine. Given such uncertainties, the central questions that emerge are: How much care must be exercised to avoid a

harm of uncertain prospect? How much sacrifice can be expected from parents under such circumstances? How much deprivation might be morally required?

Much of the above analysis could be applied to a range of parental behaviors that might negatively affect the prospect of negative reproductive outcomes. Smoking, alcohol consumption, drug use are typically pinpointed as posing significant risks to the fetus. Parents who engaged in such activities with reckless disregard for their consequences would be held morally, if not legally, blameworthy. The situation with occupationally related hazards are of a fundamentally different sort. Employers create the circumstances within which risks exist and to which workers expose themselves. They must, therefore, be held accountable for the avoidable harms to both the fetus and the offspring of workers.

To the extent that workers are free to choose to leave a job that threatens their unborn children, they may share in some of the ultimate responsibility. But the legal freedom to so choose is in reality circumscribed by restricted job opportunities in prevailing labor markets and the sometimes severe costs associated with changing jobs. The loss of seniority and pension rights make decisions to leave one's employment very difficult and such considerations must be given adequate attention when the moral responsibility of workers is to protect their unborn children from harm.

Employers have acknowledged that the obligations imposed upon them to safeguard the health and safety of workers extends to their potential offspring. But like the disputes surrounding the standards for occupational health more generally, sharp disagreements have emerged about the extent to which various exposure levels pose a risk to the developing

fetus, the degree to which production processes must be altered to take account of the special vulnerability of the fetus, the appropriateness of employment practices that seek to protect the offspring of workers by limiting access of workers, especially female workers, to potentially toxic settings.

Many employers have explicitly noted that their concern about the potential harm to the offspring of workers is motivated by fear of tort actions that might be brought against them on behalf of children allegedly harmed by parental exposure to workplace hazards. The effort to avoid financial harms that could follow the successful prosecution of such suits is best viewed as an effort to protect employers from avoidable economic burdens. Hence, issues of justice and the distribution of burdens rather than nonmaleficence are involved under such circumstances.

Given the uncertainty that surrounds the question of the level of exposure that would be necessary to avoid fetotoxic and teratogenic outcomes and the costs that would be entailed in eliminating, if possible, all such risks when employers have sought to meet the challenge of fetal protection, they have adopted a number of practices ranging from the permissive to the mandatory. Under the former are arrangements through which pregnant workers are given the opportunity to work in settings where exposure to toxic substances is avoided, or which permit pregnant workers leaves of absence. Such approaches have as their most significant feature an acknowledgement of the right of the pregnant worker to act autonomously, to exercise discretion about the extent to which she will continue to exposure herself and her fetus to risk. To the degree that the availability of financial protections accompany such permissive policies, the choices that are made will be free of the coercive impact of economic necessity.

Mandatory policies requiring the removal of pregnant workers from settings considered too dangerous for the developing fetus allow no such discretion. Here the autonomous choice of the pregnant worker is overridden by the employer's concern for nonmaleficence. In justifying such practices, employers have sought to make clear that unlike discredited paternalistic practices directed at the protection of the reproductive capacity of workers, these programs are directed at a vulnerable third party on behalf of whom there is a need to act. As with the more permissive policies, an ethical evaluation of this approach and especially of its impact on the just distribution of burdens will depend upon the extent to which those who are removed from their jobs are offered alternative employment or compensation.

At the most extreme point in the continuum of employers' responses to the risk of fetal harm are the exclusionary policies--adopted by many major corporations--that prohibit the employment of fertile women in certain job categories. The logic of these 'fetal protection policies' is rather straightforward. Since there is always the risk of pregnancy on the part of fertile women and since the earliest stages of pregnancy may be unknown to the female worker, it is necessary to protect the embryo from toxic exposure by excluding all fertile women from particular jobs. Here the employer not only interposes his judgment regarding the risks to be assumed by a pregnant worker, but with regard to those who might--despite their own plans--become pregnant in the future. Since the refusal to employ a worker precludes access to the benefits that could be associated with job transfer, the entire burden of fetal protection policies falls upon the excluded female employees.

Given the obligation assumed by the federal government for the protection of the health of workers, and given the societal interest in

preventing the birth of children harmed by workplace exposure, there is a clear responsibility for the development of standards designed to reduce the prospect of fetal harm. Though attentive to the problem of currently ineliminable risk, such standard setting must create the universe within which the obligations of parents and those of employers to avoid harm are exercised.

b. Autonomy, Privacy, and Choice

Even a strong commitment on the part of employers and government to the reproductive health of workers will not produce a situation completely free of hazards to reproductive capacity and potential offspring. In the first place, much still needs to be learned about the relative safety of various levels of exposure to industrial substances. The very process of standard setting with its inevitable mix of scientific data and economic considerations may produce "tolerable" exposure levels that fall short of more ideal standards. Technological feasibility may limit the pace of risk reduction. In short, even under the best of circumstances, workers will be confronted with the prospect of working in conditions that pose some risk to reproductive capacity and to the health of potential offspring.

Respect for the autonomy of male and female workers dictates that they be fully informed about the hazards to which they will be exposed in the course of their employment. While no substitute for serious efforts at risk reduction, the provision of such information is the most basic requisite for permitting workers to make choices regarding their willingness to subject themselves to possible reproductive harm. The failure to provide such information denies workers the first condition of informed choice and hence constitutes a form of coercion.

Stress on the importance of providing information to workers inevitably suggests a parallel to the requirements of informed consent for medical experimentation. It is therefore vital to underscore the fact that choices made by workers are often made under severely circumscribed conditions. Contemporary levels of unemployment, limits upon geographical mobility, and the prevalence of gender discrimination all function to undermine the capacity of workers to act autonomously with regard to reproductive hazards in the workplace, even when information is provided.

It is, however, precisely those limiting factors which make an analysis of efforts to protect the reproductive capacity of workers and the health of the fetus so complex. To deprive workers, either male or female, of the rights to choose jobs that might pose a risk to reproductive health may well mean "protecting the worker out of a job." To argue that a female worker ought not assume the risks to a fetus entailed in certain jobs might well mean forcing her to face a pregnancy with resources insufficient to guarantee her own health and well-being. On the other hand, respecting the autonomy of workers in this regard should not be confused with providing workers with an opportunity for freedom and self-determination.

Respecting the autonomy of male and female workers to choose employment that may compromise reproductive capacity must therefore be viewed as allowing them to balance the risks and benefits associated with employment in given jobs. That choice will be an especially difficult one for those who have not completed their childbearing plans. Because such decisions will be based on an evaluation of actual as compared to potential risks, a strong argument can be made for the obligation of employers to provide, on a voluntary basis, testing procedures that might reveal physiological changes detrimental to the reproductive process.

Thus, for example, it would be important to provide analyses of semen to determine the motility and morphology of sperm cells, as well as to determine sperm count of those workers needing such information. Respect for the privacy of workers would require that such tests be voluntary. That is indeed the practice under OSHA's Lead Standard.

Because of the risks to the survival and health of the fetus in certain job settings, it has been suggested that female employees be subjected to monthly pregnancy tests so that they might be removed from potentially toxic settings when appropriate. Such proposals, often put forward as an alternative to the exclusion of all fertile women from certain jobs, raise profound questions about the conditions under which medical procedures can ever be made a condition of employment. For those who oppose the compulsory pregnancy testing of female workers a number of ethical issues are involved. Foremost are the issues of privacy and autonomy. But, in addition, it is argued an issue of justice is at stake. By testing only women, by failing to subject to scrutiny the sperm and semen of male workers—potential vectors of harm to a fetus—the burden of protecting potential offspring is placed upon women workers alone.

Those who support the mandatory testing of women workers see in them an exercise of justifiable paternalism designed to protect the female worker from harm to her own reproductive capacity. Furthermore, and perhaps more importantly, it is held that the mandatory testing of female workers represents a legitimate exercise of authority designed to protect the vulnerable fetus whose interests might not otherwise receive adequate attention. The demands of nonmalificence are here held to take precedence over the principles of privacy and autonomy.

Invariably, proposals for such tests are linked to the mandatory removal of pregnant workers from their current jobs. And so opposition to the invasive aspects of such procedures are linked to concern for the forced deprivation of pregnant workers of their incomes. Were mandatory testing linked to job removal with the assurance of alternative and equivalent income, respect for privacy would nevertheless remain as a critical barrier to such procedures.

Opposition to mandatory pregnancy testing does not entail opposition to the provision of such tests on a voluntary basis. Indeed, it may be argued that only if such tests and their results were made available to women workers could they make informed decisions about continuing to work in settings that pose some risk to the health of the fetus. A woman might thus choose to abort, seek alternative employment, or continue to work under conditions of enhanced risk. It may be fairly assumed that most women, if provided with an adequate and alternative source of income, would not insist on remaining in job settings that posed a significant risk to a child they planned to carry to term. Where no such alternative was made available, the situation would represent a tragic choice, first and foremost for the woman involved.

C. Justice

Central to the entire problem of how best to approach the question of reproductive hazards in the workplace is the question of justice. How is the burden of protecting the reproductive capacity of workers to be borne? How is the cost of protecting the potential offspring of workers to be shouldered?

Four broad strategies for achieving the socially desirable goal of protecting workers and their offspring are possible and each entails a very different distribution of the burdens of reproductive health: (1)

transforming the workplace so that both the reproductive health of workers and the health of potential offspring is protected; (2) transferring male and female workers at appropriate stages of their reproductive cycle to jobs which will pose no risk; (3) permitting male and female workers to work in settings defined as posing some risk; and, (4) refusing to hire fertile women or discharging pregnant women from jobs that pose some risk to the health of a fetus.

The first strategy begins with the moral assumption that those who benefit from the labor of others bear the primary obligation for providing a workplace that is, to the extent possible, free of hazards. Those who support this strategy believe that because employers have the financial capacity to absorb the costs associated with adopting protective policies, and because they have the capacity to shift those costs forward to consumers, this approach involves the broadest distribution of the burden of meeting the problem of reproductive health. Limiting the applicability of this approach are the potentially overwhelming costs that might be entailed in reducing exposure to levels that are deemed safe for the fetus.

Since it can be assumed that some level of reproductive risk will remain, even under the best of circumstances, it will still be necessary to protect male and female workers from reproductive harm at points in the reproductive cycle. Like the first approach, the strategy of jobs transfer would place upon employers the primary financial burden of protecting reproductive health. If job transfer would entail rate retention that burden would be absolute. To the extent that workers would be expected to take on less desirable jobs at lower pay, the burden of protecting reproductive health would be shouldered by both employee and employer. To the extent that patterns of promotion and seniority rights

would be disrupted by the reproduction-related transfer of workers, other workers would be forced to bear part of the burden of such policies.

The third strategy would shift the burden of reproductive harm to workers by permitting them to assume the risks associated with hazards to the capacity to conceive and bear healthy children. Though tort suits might be available to meet the costs of negative reproductive outcomes, the personal burden and social consequences of workplace-induced toxicity would not be avoided.

The fourth strategy, which is reflected in fetal protection policies, shifts the burden of protecting society from reproductive hazards to female workers alone who are forced to bear the consequence of job deprivation and reduced earning power.

It is clear that in the public debate over reproductive hazards those who have confronted each other over each of those strategies have sought to underscore the impossible burden that would attend the adoption of policies to which they are opposed.

There is little question that the cost of achieving the social goal of reducing reproductive hazards in the workplace will not be small. Each of the strategies described above represents an alternative for the distribution of those costs. If we assume as a rule of thumb that equity requires that the cost of socially desirable goals be distributed as broadly as possible, it is clear that the first approach would represent the most equitable strategy. The least equitable strategy would be the fourth approach with its shifting of the total burden of reproductive hazards to women workers.

There is an additional factor which makes the final approach least desirable and that involves the special problems faced by women workers.

In recent years women have entered the labor market in unprecedented numbers. In large measure they have done so because of the pressures of economic life in the United States. Only recently have they succeeded in making inroads into relatively well paying blue collar jobs that formerly had been barred to them by law, tradition, and practice. Women therefore represent a vulnerable segment of the workforce that deserves special protection. Policies and practices that may hinder or reverse their advance, however, inadvertently must be subject to close scrutiny.

V. The Locus of Decisionmaking

If justice requires that the response to reproductive hazards in the workplace involve the broadest distribution of the burdens associated with protecting reproductive capacity and the health of potential offspring of workers, how can that end be best achieved? At the present moment, the issues which have crystalized around the exclusionary policies of large corporations have become the basis of litigation in which the demands of Title VII of the Civil Rights Act and the requirements of the OSH Act are being debated before the courts. A recent attempt to provide guidance on this matter for employers, administrative law judges, and the courts failed. Criticism from employer groups, trade unions, and women's groups made the middle course adoptedd in the Interpretative Guidelines proposed by the Equal Employment Opportunity Commission and the Office of Federal Contract Compliance Programs untenable. Thus, at the present moment, the issue of protecting workers from reproductive harm has produced no clear policy resolution.

Some have argued that because of the complexity of the scientific issues involved and the great costs that would be entailed in transforming the productive process so that both workers and their potential offspring

might be protected, decisions in this regard should be left to the process of negotiation between employers and their employees. The failure of the EEOC and OFCP to develop an appropriate standard suggests to the opponents of federal regulatory efforts that only crude and burdensome interventions could be expected from any other attempts on the part of the federal government.

Those who argue for the development of strong federal initiatives designed to protect both reproductive health and equal employment opportunity note, on the other hand, that the consequence of indecision has been inadequate protection and violations of the rights of female workers. Only in those industries where women represent a small fraction of the labor force have employment practices evolved that at least superficially seek to protect their offspring. And there the response has been to deny access of all fertile females to jobs. In those sectors of the economy--the health care sector, for example--where women provide the backbone of the labor force, they continue to be exposed to mutagens and teratogens. Males, too, have by and large remained underprotected.

Reliance upon the private resolution of matters affecting relations between employees and employers achieves its most equitable outcome when the relative balance of power permits negotiations to occur in a manner that requires each side to acknowledge the interests of the other. In the matter of occupational health generally and more specifically in the matter of reproductive hazards, those conditions do not prevail. The availability of scientific data to those who speak for workers is often less than adequate. The absence of trade unions in the vast majority of establishments puts employees at a bargaining disadvantage. Because of the legacy of employment discrimination, women employees are especially

vulnerable. Finally, those who are barred from jobs because of assumptions regarding reproductive hazards do not even enter the framework of collective bargaining.

For all these reasons and given the social interest in preserving the reproductive capacity of workers and the health and well-being of future generations, it seems appropriate to make the issue of reproductive hazards in the workplace a matter of federal regulatory action. Only then can the moral obligations of employees and of potential parents be provided an adequate framework within which they can be realized. Only then will it be possible to design policies that seek an equitable distribution of the burdens associated with reproductive hazards.

**REPRODUCTIVE HAZARDS IN THE WORKPLACE:
THE POLICY OPTIONS BEFORE CONGRESS**

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Ethical Underpinnings of a Policy of Increased Funding for
Research into and Surveillance of Reproductive Hazards in the
Workplace

The moral ambiguity that surrounds the appropriate course of action on government, private and personal levels with regard to reproductive hazards in the workplace is at least in part a function of our limited knowledge and understanding of the nature of the risks involved. We know too little about the potential impact of workplace exposure on the reproductive capacity of male workers and of the possible consequences of such exposure to fetal health and the health of potential offspring. We know more, but not enough, about the potential impact of the exposure of female workers.

As a consequence of our own relative ignorance it is difficult to know with any degree of certainty whether: the public policies we consider or in fact adopt, the employment practices now extant, the personal choices now made, are too cautious, too restrictive, or insufficiently so. Under such circumstances it is difficult to know whether the levels of risk now tolerated represent the inevitable and irreducible consequence of modern industrial life, or whether they represent a reckless disregard for the health of workers and of their potential offspring.

There is therefore a clear and important ethical basis for supporting the principle of increased funding for surveillance and research into reproductive hazards in the workplace.

From the point of view of workers increased funding for research and surveillance is intimately linked to the "right to know." As noted in our discussion of that right, it is founded upon respect for the autonomy of those who may be faced with risks in the

workplace. Only informed workers can choose on their own behalf. Furthermore, the principle of justice would seem to require increased funding for research into and surveillance of reproductive hazards since only the production of new knowledge on this matter can make possible equitable discussions between employees and their employers about measures to be taken to reduce the levels of risk associated with work, and about the distribution of the burdens associated with these risks and the task of risk reduction. Finally, research and surveillance are necessary so that workers can consider the implications of the moral principle of nonmaleficence for their own behavior. Only with increased knowledge can workers determine how the duty they may have to the unborn should be affected by their employment decisions.

From the point of view of the employer, increased funding for surveillance and research would make possible the fulfillment of a number of ethical responsibilities. First, new knowledge could produce data necessary for a better understanding of what actions might be called for to protect male and female workers as well as their offspring from reproductive hazards. Such knowledge would therefore be necessary for the fulfillment of the moral duties associated with nonmaleficence. Second, new knowledge that would flow from newly funded research and surveillance would permit employers to fulfill their obligations to warn workers of potential risks, thus allowing workers to exercise their autonomy under hazardous conditions.

From the point of view of society, the public funding of research and surveillance would meet the requirements of a number of ethical principles. Most important, it would lay the foundations

for a more reasoned consideration of policies that might be necessary to protect the reproductive health of male and female workers, the viability of fetuses, and the health and wellbeing of the potential offspring of workers. But even if such research and surveillance did not result directly in new public policy, it would enhance the autonomy of workers and the capacity of both workers and employers to reduce potential harms and injuries, in accordance with the principle of nonmaleficence. Finally, the public support of funding and research into workplace reproductive hazards would represent the broadest sharing of the burdens associated with the cost of such studies.

Practical Issues and Their Ethical Implications

But if, in principle, there can be no objection to the increased funding of surveillance of and research into reproductive hazards, there are practical matters that must be addressed by policymakers committed to such a course. These practical matters have ethical implications.

(a) How much is enough?

First, there is the broad question of how much funding should be provided for research into and surveillance of reproductive hazards. At stake is not simply a matter of efficiency, but one of justice as well. Resources spent unwisely may result in restrictions on expenditures for other social goods, whether related to occupational health or not. Conventionally, it is asserted that marginal utility should ideally govern such determinations. But such a formulation begs the question of how to value the increasingly limited or remote benefits of each increase in research

dollars. How does one value the increased possibility of enhanced autonomy, or even of the prospect of reducing the incidence of miscarriage, or failed attempts at conception? There is no simple answer to the appropriate level of funding, since neither utilitarian formulations with their stress upon measurable consequences, nor deontological formulations with their stress upon the rights and duties of those involved can provide a clear and appropriate standard. An ethically sensitive analysis of this option should, however, be alert to the need to underscore the moral dimensions of decisions regarding the level of funding made available.

(b) Ethics and the research agenda

A second and related question centers on the ways in which funds made available for research and surveillance will be used. Here the most crucial matter bears on the extent to which the current pattern of research into reproductive hazards has been affected by culturally informed biases regarding the role of the exposure of female workers in negative reproductive outcomes. If that is the case, then both scientific and ethical grounds would exist for stressing research into the vulnerability of male workers to reproductive harm and of the consequences of such harms to fetal health and the wellbeing of potential offspring. Some have argued that only such a new direction in research could produce knowledge that could serve to redress a pattern of perceptions and practices that are inadequate to the protection of the reproductive health of all workers, to the wellbeing of their potential children, and that are inimical to the rights of female workers. On the other hand, some researchers have argued that the dominant research agenda—with its stress upon risks associated with the exposure of female

workers--is scientifically sound rather than an artifact of social bias. Indeed, they argue that an effort to stress the hazards attendant upon male exposure would represent an attempt to fashion scientific research to satisfy a socio-political agenda. However this issue is resolved, it will have profound consequences for the course of public and private policy. It is thus an ethically sensitive matter.

Privacy, Autonomy and Research into Reproductive Hazards

There is an additional set of issues raised by the seemingly unproblematical commitment to increased funding for research into and surveillance of reproductive hazards in the workplace--those that center upon potential risks to privacy and autonomy.

Laboratory-based research involving the voluntary participation of research subjects who might be asked to discuss the intimate details of their sexual lives and plans for procreation, who might be asked to provide semen samples, and who might be called upon to subject themselves to repeated tests for pregnancy, raises few ethical questions that do not arise in the general course of human experimentation. The requirements of voluntary informed consent would apply--including a full description of the potential risks and benefits of the research. So too would the requirement that measures be taken that are designed to protect the confidentiality of records generated in the course of research.

Surveillance of reproductive outcomes and research into workplace exposure and reproductive hazards become more problematical when the locus of observation and inquiry shifts to the place of employment.

It is important to distinguish, at this point, between issues raised by research and surveillance conducted solely for purposes of advancing scientific knowledge and those investigations that also have a potential role in the determination of the employment status of workers. Workplace research and surveillance of the latter variety raise complex ethical issues linked to employment practices themselves. But even research and surveillance of the former kind raise important ethical issues.

Respect for the privacy and autonomy of workers requires that participation in research and surveillance be based on voluntary informed consent. Voluntariness may, however, be especially difficult to preserve in the context of the workplace. Given the doctrine of employment at will, workers may believe--and may be correct in believing--that the reluctance to participate in employer-initiated or sponsored research will result in adverse employment decisions.

When workers do agree to participate in either surveillance or research programs in the workplace respect for their autonomy dictates that they be fully informed about the potential uses to which collected data will be put. Especially important is the matter of full disclosure regarding the ways in which research data will be insulated from personnel decisions. Workers must also be notified of the ways in which government agencies may have access to identifiable data generated in the course of surveillance and research and the way in which such agencies might use the data involved.

A commitment to voluntariness in research is not without its costs. The conduct of surveillance or more systematic studies may well be hampered by a commitment to uncoerced subject participation.

The goal of reducing reproductive hazards may be made more difficult to reach. Yet a moral consensus has emerged in the United States that the most important moral goods cannot be purchased by the violation of the individual's right to refuse to make his or her body available for medical research.

When surveillance and research are directly linked to employment and placement decisions the ethical evaluation of the investigative procedures cannot be separated from the ethical evaluation of the consequences that flow from them. Thus, there are circumstances where men whose sperm count has fallen may be shifted to other jobs or even have their employment terminated. More likely, women discovered to be pregnant may be confronted with decisions about their employment. As noted in our more general discussion of the ethical issues raised by reproductive hazards in the workplace, such actions involve matters of autonomy, nonmaleficence and justice. To the extent that employment decisions based upon research and surveillance are unjust or represent a serious violation of some other ethical standard the research and surveillance will itself be tainted.

In addition to the ethical reasons for avoiding such an outcome, there are practical reasons as well. To the extent that workers perceive surveillance and research into reproductive hazards as linked to potentially injurious actions on the part of employers they will be reluctant to cooperate with investigations that are crucial to the advance of scientific knowledge. It was to ensure worker collaboration with surveillance that the OSHA Lead Standard mandated medical removal protection with rate retention as a way of safeguarding the economic interests of workers whose medical results indicated the negative consequences of lead exposure.

Increased Funding for Research Under Differing PolicyConfigurations

With these broad considerations in mind, it is now possible to turn very briefly to the implications of increased funding for research and surveillance under differing conditions.

1. For the Federal Government to increase funding for research and surveillance while maintaining the status quo (option 1) with regard to other possible initiatives would be a tenable alternative in the short run. In the long run, however, much would depend upon the research and surveillance findings. If research and surveillance revealed that current employment practices and government policies systematically failed to protect workers and their potential offspring from the consequences of exposure to workplace hazards, pressure would mount for regulatory action reflective of these findings. Such findings might, for instance, reveal that a substance-by-substance approach was warranted if the risks to reproduction were viewed as relatively circumscribed. If, however, the risks turned out to be more generalized, a broader generic approach might be deemed necessary.

2. Funding for research and surveillance may be viewed as preliminary to any further Congressional action—given our current level of understanding, or as a concomitant of more aggressive federal activity. Certainly, the efficacy or even desirability of medical removal protection for substances other than lead would in large measure depend upon our understanding of the ways in which exposure affects reproductive health and capacity. Similarly, a

broad program of compensatory activities would require greater knowledge than is now available in many instances. On the other hand, given what we already know, compensation for reproductive damages or medical removal protection could be instituted as social policies on a limited scale while research and surveillance were undertaken to determine the advisability of more extensive action.

What must be stressed, in conclusion, is that while an ethically sound policy cannot be the consequence of new data alone, no ethically sound policy can exist without a more adequate understanding of the risks to reproduction associated with workplace exposure.

Ethical Issues Raised by the Option of Legislating Reproductive Risk Assessment in the Regulatory Process

Following the very useful analysis provided by the National Research Council in Risk Assessment in the Federal Government: Managing the Process, it is important to keep distinct the process of risk assessment and risk management. The former is preeminently a scientific undertaking designed to use "experimental evidence to define the health effects of exposure of individuals or populations to hazardous materials and situations." The latter represents a policy-political process through which the levels of potential harm made clear through risk assessment are subjected to regulatory review. In considering the option of mandating reproductive risk assessment it should be clear that no assumptions regarding the desirability of federal regulatory action is entailed. Rather, it is the importance of making data available to public agencies charged with the protection of workers and the population more

generally that is entailed. Without risk assessment there can be no reasoned decision about whether or not to proceed with regulation and control.

Risk assessment is thus ethically necessary, so that: workers may know the extent of the risks to which they are exposed; management may know the extent to which its production processes put workers and their potential offspring at risk; government may determine the appropriate policy course, including the most equitable distribution of burdens among workers, employers and the broader society of reproductive hazards and the cost of their elimination. As such, the ethical principles of autonomy, nonmaleficence and justice are involved.

Like research more generally, risk assessment seems ethically unproblematical. Therefore, legislating reproductive risk assessment for all agencies charged with protecting workers and their potential offspring would seem to pose few ethical problems.

Before going any further it must be asked whether such an option is necessary at this point. Do not NIOSH, OSHA and the EPA already have the discretion to consider reproductive harms in their assessments and regulatory activity? If they do have such a discretion, is it exercised in a manner that responds adequately to the human cost of reproductive harms? Much depends upon the answers to these empirical questions, and those answers are beyond the scope of this discussion.

If an empirical analysis were to reveal that the current level of risk assessment for reproductive hazards was inadequate, a strong case could be made for: tightening existing regulations under

existing laws; providing for increased enforcement of existing laws; mandating a uniform reproductive risk assessment policy throughout government regulatory agencies.

Beyond the obvious administrative and bureaucratic issues raised by these alternatives is a question of what costs would be entailed in requiring a level of reproductive risk assessment deemed adequate. (The matter of adequacy is not itself value-neutral, requiring as it does a moral analysis of the balance between desired goals and available means.) Risk assessment can be a very costly procedure and could well represent an important cost to manufacturers asked to provide relevant regulatory agencies with data. Ultimately, the determination of how heavy a burden to create is political, but it must be subjected to the critical standard of equity and fairness.

For the agencies that might be required to adjust their own assessment agendas ethical issues would also be involved. Given the potential pool of substances and processes that regulatory agencies could be called upon to subject to risk assessment, priorities must be established. A legislative mandate for reproductive risk assessment must be attentive to the question of whether a reordering of the assessment agenda would represent a fair and equitable allocation of resources, and whether such a reordering might not distort the efforts to provide the most effective basis for the protection of workers and others.

Finally, any mandate for reproductive risk assessment would have to determine the appropriateness of procedures requiring pre-market approval of those that operate through post-hoc

mechanisms. Decisions about this matter have important implications not only for the efficiency of agency functioning but for the ethical principle of justice as well. Pre-market approval may produce greater levels of protection to those who might be harmed by exposure, but at considerable cost to employers and perhaps to society at large. Post-hoc procedures, on the other hand, place potentially greater burdens upon those exposed and fewer upon those who would benefit from the expeditious introduction of new substances or production procedures.

REPRODUCTIVE HAZARDS IN THE WORKPLACE
ETHICAL ISSUES IN DISCRIMINATION AND JOB TERMINATION

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Outline

REPRODUCTIVE HAZARDS IN THE WORKPLACE:

ETHICAL ISSUES IN DISCRIMINATION AND JOB TERMINATION

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The problems addressed in this paper concern the ethical implications of policy options of exclusion or nonexclusion from the workplace of only fecund women and men, only fecund women, and only pregnant women. These problems are generally conceived as matters of justice, and preliminary discussion is therefore in order of what it means to situate them under the label of justice, and of what the connection is between justice and moral requirements of nondiscrimination. The first few sections are devoted to this task. We shall then see that justice is not the only relevant moral consideration, although it may be the chief.

Especially close attention will be paid to problems of the alleged discrimination involved in exclusionary policies. The word "discrimination" has come to refer to the unequal treatment of a person, thereby placing the person at some disadvantage, although there is no relevant difference between that person and others. Discrimination has thus become associated -- especially in employment contexts -- with "invidious" or "unjustifiable" distinction among persons. This is not true, however, of "reverse discrimination," which means (possibly justified, possibly unjustified) action on behalf of a less qualified person or persons on the grounds that the group to which the person belongs was previously discriminated against. But we shall look exclusively at alleged sex and reproductive-capacity discrimination. Here the most straightforward and pervasive charge of discrimination is that when jobs are distributed (offered, terminated, etc.), and some persons receive a smaller allotment because of their sex or status as fecund or pregnant, then others receive a larger allotment, although on the basis of irrelevant properties and without a valid claim on the jobs.

Charges of discrimination commonly arise over sweeping policies that make jobs off limits to women of child-bearing potential. There are several reasons behind the perception of discrimination. First, the alternative jobs that are open to women in industries where bans may seem appropriate are often low-paying jobs. Thus, the policy may have, or at least seem to have, the effect of funneling women into lower-paying positions. Second, some have argued that there is a shortage of well-supported evidence about exposure to certain alleged toxic hazards and a general lack of consensus in government and industry about proper levels of unsafe exposure. This problem seems especially acute if the male's contribution to birth defects (where mutagenic substances affect the sperm) may be no less probable than the female's, and yet the policy is aimed exclusively at females. Policies that exclude men and women equally are not, of course, subject to this particular accusation of discrimination, but nonetheless have been attacked as discriminating against younger persons or against all and only those capable of reproduction.

Although only pregnant women and fecund men and women are here under discussion, the arguments used could be extended to related problems in the workplace, in particular to dangers posed to already-born children by a parent's work environment. The arguments presented here are limited only because of the special overall focus of this study on reproductive hazards. It would be short-sighted not to recognize that there are many nonreproductive contexts to which these same arguments apply. The recent discussion of the link between brain tumors in children and their parents' exposure to toxic chemicals -- such as those in solvents and

paints, in the aircraft industry -- is one of many possible examples. This suggests that the policy problems are broader than the restricted discussions here may suggest.

Let us now see both how these problems are justice-based and some of the inherent limits in appeals to justice and to rights based in justice.

Problems in Appeals to Justice and Rights

Human society is structured by various moral, legal, and cultural rules and principles that form its terms of cooperation. They are the implicit and explicit terms under which individuals are obligated to cooperate with others. "Justice" is a broad term used to refer to many questions about the terms of cooperation where fairness, desert, and valid claims are at stake. Distributive justice refers to the distribution of scarce benefits, where there is some competition for them. Usually the distribution involves what John Rawls calls "primary social goods" -- e.g., jobs, economic benefits, and fundamental political rights. But social burdens must also be considered, and here problems of exclusion in the workplace are paradigmatic: One who loses a job, say, does so based on some allocational principle. There are no such problems of distributive justice and no need of principles of distributive justice until some measure of scarcity exists. But when burdens and/or benefits are being allocated, there is competition for the least disadvantageous distribution, and it is here that problems of justice become most intense.

Yet the rules of justice are often not sufficiently specific to

resolve situations of conflict, or even adequate to point the way toward a satisfactory resolution. Rules of justice such as "To each person an equal share," "To each person according to individual need," or "To each person according to merit" are uncertain guides when we encounter intractable problems such as exclusionary policies aimed to protect persons' rights and legitimate interests, but that conflict with the rights or legitimate interests of others. These principles are in part uncertain guides because they can come into conflict even among themselves.

A particular case -- analogous but not identical to our main preoccupation in this paper -- may help to make clearer the conflicts that can occur between principles of justice. The case involves one Mark Dalton, a histology technician in the employ of a large chemical company.¹ Dalton was an excellent worker, but a week-long sick leave led a company nurse to discover that he had a chronic kidney disease. It was also discovered that the permissible chemical vapor exposure levels of Dalton's job might exacerbate his kidney condition. Management found another job at the same rate of pay for which Dalton was qualified, but it turned out that two other employees eligible for promotion were also interested in the job. Both employees had more seniority and better training than Dalton, and one was a woman. The company had instituted an affirmative action policy. In this situation, each of the three employees can appeal to a different material principle of justice to substantiate his or her claim to the available position. Dalton can cite the principle of need, arguing that his medical condition requires that he be offered the new position. With their superior experience and

training, each of the other two employees can invoke principles of merit, societal contribution, and perhaps individual effort on behalf of their claims to the position. Additionally, considerations of equal opportunity might give the woman valid grounds for claiming that justice should take account of her special individual rights, introducing yet another principle.

This case is meant to illustrate the complexity often involved in appeals to justice. Invoking our most general notion(s) of justice will often prove unsatisfactory, because we will have to accept one or more conflicting principles. We will perhaps wish for a general account of justice that will order this fragmented array of considerations, but no such account may be readily forthcoming. We should be prepared to find that problems of discrimination in the workplace have this kind of intractable character, especially if we look for their resolution in principles of justice.

In the face of such problems of justice, some have sought refuge in the language of "rights." It is unclear that such appeals clarify these problems or render them less intractable. To say that one has a right to something is to say that people's sympathy for one's having it is irrelevant to the justice of having it, for rights are valid claims independent of others' feelings. Moral rights do not depend, as it were, on lovability by others. Therefore, rights enable us to make claims against other people or institutions. But, as with the principles of justice on which rights-claims are often grounded, rights too come into conflict, and this seems at the heart of the issue about exclusion of fecund persons from the workplace -- as, e.g., when [see the American

Cyanamid case in OTA Appendix, Chapter 7] female employees of chemical companies have decided to undergo "voluntary" sterilization in order to retain their jobs. Spokesmen for chemical companies have sometimes argued that unborn fetuses have moral and legal rights that the companies, as employers of fertile women, are obliged to protect -- the implication being that these obligations justify company decisions to remove nonsterilized women from high-paying but potentially dangerous positions.² Opponents of such policies argue that the fertile female employees themselves have countervailing moral and economic rights that need to be taken into account.

The intractability of such appeals to rights highlights the importance of analyzing distinctions regarding the nature and types of rights that have emerged in ethical theory as well as the specifics of the particular circumstances in which such conflicts arise. Most writers in ethics now agree that a person can only validly exercise a right to something only if sufficient justification exists -- i.e., when a right has an overriding status. Rights such as a right to equal economic opportunity and a fetus's right to physical well-being thus must compete with other rights in a situation -- producing protracted controversy and a need to balance with great discretion the competing rights claims, if one judges that both parties claiming to have rights actually do have rights. One of the most perplexing problems in the conflict over exclusionary policies is that persons making claims about rights see their own claims as inherently stronger than an opponent's, whose claims will either be viewed as weaker or else nonexistent.

Two Alternative Positions on the Ethical Issues

Policies that exclude from a work environment only fecund women and men, only fecund women, and only pregnant women can be defended by moral arguments and can be attacked by moral arguments. The next few pages sketch out the main lines of these two mutually inconsistent, but well-reasoned positions, showing how justice and other moral principles apply. These will be developed here as starkly opposed viewpoints, although there are undoubtedly many intermediate positions.

(1) Arguments for the Justifiability of Exclusionary Policies

Those who claim that measures of exclusion are justified -- or perhaps required by justice -- have commonly argued that justice permits, and perhaps demands, protection for the endangered fetus. According to this approach, these are problems of public health, which should be handled as are other social problems such as poverty and poor housing -- including massive social allocations for their alleviation if necessary. In each case, society is said to owe the eradication or alleviation of these problems to affected parties as a matter of justice.

An historical context in which to situate this claim can be found in the Drug Amendments of 1962, which made fundamental changes in the federal regulation of the drug industry. Just prior to this act, the fetal defects and infant deformities in Europe that were produced by the sedative Thalidomide captured national attention, a story eventually told with deep impact on a congressional subcommittee headed by Senator Hubert Humphrey. Senator Humphrey, together with Senator Estes Kefauver and others argued that insufficient federal protections existed in testing

and warning requirements, leaving all too open the possibility of experimental drug use, with potentially devastating public health consequences.

One might argue that the present concern about risks to fetuses and newborns as a result of exposure in the workplace is parallel: We know very little about the causes of congenital defects in humans in the case of either drugs or environmental chemicals. In the case of drugs believed not to be directly harmful to a fecund or pregnant person, but where uncertainty prevails over potential harm to the developing fetus or to reproductive capacity presented by possibly mutagenic or teratogenic substances, why not take the more controlled path taken in reaction to Thalidomide and simply exclude persons from contact with such chemicals and drugs? Because these substances usually do not occur singly, but in combination, does this not supply additional grounds for caution? The question also arises whether one could even realistically enact a policy that allows a pregnant woman a choice in these matters, because the period of maximum hazard for the developing fetus seems to occur in early pregnancy, before women are aware of their pregnancies.

Some have argued that a truly voluntary policy in the workplace would allow a person to be informed of the possible consequences of exposure, and then either to accept the risks and waive responsibility for the outcome or refuse the risks and assume responsibility for the consequences of the latter course. This argument is modelled on an informed consent/informed refusal conception of how to handle risks in the workplace. There are too many unresolved problems with such a conception to survey them here, but the defender of a policy of exclusion

based on fetal protection is certain to land on one main line of argument: Waiver by a worker is irrelevant to protection of the fetus, whatever it may do for the worker. If a fetus has rights, or at least will have rights when born, then those rights are protected by the policy. The worker's liberty rights -- whether male or female -- are irrelevant to the defense of this position, because validly overridden. Moreover, if one accepts this line of argument, it is hard to see how sex discrimination could be at work so long as the whole issue and sole basis for the policy is protection of the susceptible fetus.

It has been argued that discrimination entails unequal treatment in an area where equality should prevail. Yet if we say that all people should be treated equally, what standard of equal treatment are we espousing? One view is that there is no single specifiable respect or set of respects in terms of which all people should be equally considered. Rather, there is only a procedural principle of impartiality by which we ought to abide in all circumstances: "No person should be treated unequally, despite all differences with other persons, until such time as it has been shown that there is a difference between them relevant to the treatment at stake." Special favoritism and prejudice are supposedly eliminated in this way. The supporters of this view argue that particular contexts normally provide rules to determine differences, but where there are no rules then anyone who wishes to discriminate must provide an argument against equal treatment. This will not help much in the present case of alleged workplace discrimination, because the focus of the issue is over whether being fecund or pregnant introduces a relevant difference. By this procedural principle any difference

(fecundity, pregnancy) can, in principle, be a relevant difference; and the present argument is that bearing a fetus or potentially causing one to be born does introduce a relevant difference. This presumably refutes the charge of discrimination. [This point is analogous to that made in the OTA "Sex Discrimination Issues," Chapter 7, pp. 7-12 about pregnancy not being a shared characteristic, so that the gender equality principle does not clearly apply. It is correctly pointed out there that some believe that discrimination based on the physical characteristics of any one sex is itself a form of sex discrimination -- meaning, I presume, invidious or unjustified sex discrimination. The point could be developed in the present context in this same language, if you prefer.]

To make good on a charge of discrimination based on reproductive properties or pregnancy one not only needs far more specific criteria than have generally been available, but must deal with the aforementioned question of whether it could be discrimination if the intent of the policy is to protect the fetus. These premises in support of fetal protection, and for the fairness of doing so by singling out fecund and pregnant persons, supply the reason for overriding the liberty of workers to choose. No one would deny that by protecting rights or liberties for one group, the law creates obligations on or restricts the liberty of others. Even the most protective law or restrictive policy places a limit on what was formerly an open option; but some liberties inevitably must be judiciously traded off for various other forms of state protection. If others use their freedom to engage in repulsive or degrading actions, or ones rooted in needless ignorance, then that liberty may rightly be suppressed. The defenders of exclusionary

policies defend precisely the view that protection for the fetus rests on such a trade-off of liberty in favor of protection from harm.

(2) Arguments for the Unjustifiability of Exclusionary Policies

Justice-Based Arguments. Those who argue that exclusionary policies are unjust believe that we should continue to determine the justice of a policy by strict equality and merit, while attacking the roots of discrimination against persons. Usually these proponents do not view fetuses as persons or as having rights, at least not overriding rights. Some would add the stronger thesis that women in the workplace are owed preferential treatment as a group because of their past economic sacrifices, systematic deprivation, and consequent personal and group losses. On this view, it would be a compounded injustice to ask women to make an economic sacrifice.

Those who take this view regard exclusionary policies as resulting in invidious discrimination because they violate the equality of persons by discriminating for and against groups, thus favoring nonfecund persons with undeserved privileges and damaging the rule of law by replacing it with arbitrary policies and power struggles. They view persons as being penalized solely on the basis of the morally irrelevant properties of being either fecund or pregnant. This argument is especially attractive if one believes that the major problems with sexism and allied forms of discrimination stem from their subtle and camouflaged status in denying equal opportunities to members of already disadvantaged groups. John Stuart Mill argued this same thesis in the nineteenth century about sexism; and it is not likely that this controversy will soon vanish.

Even if there have been advances in the twentieth century in protecting the rights of women, the handicapped, and other disadvantaged persons, many still believe that on the whole our record of nondiscrimination is not a good one.

Autonomy-Based Arguments. Far more than principles of justice and nondiscrimination can be invoked in defense of the belief that exclusionary policies are not warranted. Its adherents may also appeal to principles of liberty, respect for persons, and respect for autonomy -- terms and principles that can be taken as more or less synonymous for present purposes. The main line of argument is the following: To respect persons is to see them as unconditionally worthy agents, and so to recognize that they should not be treated as mere conditionally valued things that serve other's purposes. To exhibit a lack of respect for persons is either to reject a person's considered judgments or to deny the person's autonomous right to act on those judgments. This notion of respect demands that we allow persons the freedom to form their own judgments and perform whatever actions they autonomously choose within other moral limits, of course. But if one views the fetus (or future child) as not having rights and does not see the workplace through the spectacle of paternalism, it is hard to see what moral limits could validly limit one's choices.

As applied to circumstances of uncertainty and controversy in the workplace, this argument proceeds as follows: We need to first establish the function or goal of policies governing risk. The main goal in regulating risks in the workplace has always been and probably always will be to determine an objective level of acceptable risk and then to ban

or limit conditions of exposure above that level. It is doubtful that this outcome is the primary goal of disclosures of risk, which allow individuals affected to make a subjective determination of what is an acceptable risk to them. But in a circumstance of inherent uncertainty, where so much is at stake for the worker in the way of both health and employment security, should not disclosure and choice prevail over any alternative approach?

Certainly information gathered about risks to safety and health does not always objectively determine acceptable occupational risk. Indeed, the information often leaves many regulatory alternatives for policymakers. Substantial ambiguity prevails; and even the most informed expert may be uncertain about the risks and the dose levels at which there should be concern about health and safety. Epidemiology may offer the only method of discovering occupational health risks, and epidemiological studies may deliver conflicting conclusions. Moreover, the tradeoffs involved -- as between control of health hazards and increased production costs or between cessation of production and negative employment effects -- are assessed differently by different parties.

Under such circumstances, is it not the worker's right to make the choice? This question about the relationship between policymaker and workers can be viewed as analogous to that between physicians and patients. Physicians have expert technical information and expert skill in evaluating risks and alternatives. It does not follow that physicians should interpret what is best for their patients merely because of their expertise. No more should someone else determine for the worker what is best.

A related argument in defense of the autonomy-compromising character of exclusionary policies is that they often are or can function as coercive instruments. To say that a policy is coercive does not here mean merely that the policy exerts a pressure or influence that deeply affects a person's decision. Coercion occurs if and only if one party intentionally and successfully influences another by use of force or credible threat of unwanted, avoidable, and serious harm so severe that the person is unable to resist acting to avoid it. The source of this compulsion may be the threat of another, including a policy put in place by the other. If fertile women workers "choose" what have been called "voluntary" sterilizations rather than give up high-paying jobs that involve exposure to chemicals harmful to their reproductive capacities or fetuses, one plausible view is that their "choices" are not voluntary at all, but rather are coerced by a policy that explicitly, and intentionally, presents a threat. The moral problem here is not one of discrimination per se, but again is of a compromise to voluntariness by blunting one's autonomy. Yet if the aim of the policy is exclusively focused on a special group, and another group benefits, the effect of the policy may be viewed as discriminatory (irrespective of the intent of the framers of the policy).

Another source of potential discrimination is an exclusionary policy written in such sweeping terms that women who either cannot have children or who do not want to have children will be swept under its provisions. This is, in effect, an objection to the paternalistic side of such policies: Many persons feel particularly strongly that they should not be protected against a possible course of action that they do not plan to

take and indeed have rejected. They believe that too much liberty must be yielded in such policies in order to protect too little in the way of health and safety, either for the worker or for a (potential but presumably unlikely) child.

Ambiguities and Weaknesses in the Above Arguments

Although the above two positions are utterly opposed, springing as they do from disparate premises and starting points, these arguments only touch the surface of critical presumptions, hidden premises, and unclarities in concepts needing further analysis. For example, in the discussions of worker waiver and coercion, deep assumptions are made about the voluntariness or nonvoluntariness of the choices made by workers. What is the quality of consent or refusal by the person whose liberty might be restricted by such policies, or who might be waiving responsibility for deleterious outcomes? The case may be argued that many whose health is affected by hazards in the workplace are engaging in what may be substantially nonvoluntary behaviors, even though they knowingly engage in the behavior and might rationally oppose policies that penalized them for such behavior. This issue raises profound problems about the nature and quality of autonomous behavior over which deep divisions abound in the scholarly literature.

Second, we earlier noted certain problems in appealing to premises of justice, because the rules of justice are often insufficiently specific to resolve situations of conflict. The matter is even more complicated by an important distinction between just procedures and just results. The term "distribution" may refer to the procedure of distributing, or it

may refer to the result of some system of distribution. Ideally it is preferable to have both just procedures and just results, but this does not always happen. For example, one might achieve a just result in distributing wealth, but one might use an unjust procedure, such as undeserved taxation of certain groups, in order to achieve it. By contrast, a just procedure such as a fair trial reaches unjust results if the innocent are found guilty. In discussions of justice the system is often in question, although those who are criticizing the system may be pointing to unjust results. It is important to be clear on whether it is the procedures, the results, or both that are under consideration. In exclusionary policies it is often unclear just which is in question, but usually results rather than procedures seem to be the primary aim of arguments alleging discrimination.

Because unfortunate (but not necessarily unfair) outcomes are inevitable in purely procedural systems, shifting the issue from results to procedures will not avoid all ethical controversy. The various traditional theories of ethics will provide competing theories of criteria of just procedures as well as of just outcomes. Within the American system, representative democracy acts as something of a final procedure, but agreement on this procedure will clearly not suffice to quiet all controversy about just procedures, and even if it did, problems of just results would remain.

Alternatives to Job Termination

Those who defend the second batch of arguments above (2) are sure to disagree with any policy that calls for a system of "fair alternatives"

to job termination by, e.g., transferring employees to another environment at the same rate of pay, seniority, benefits, or other alternatives. The same arguments recounted above against exclusionary policies will be repeated, because alternatives to termination where the policy requires a move will be coercive, even if reasonably fair-minded. In the eyes of these employees it is likely to be seen as unfair and unnecessary. But let us take as axiomatic, for the sake of argument, that it is necessary to provide some range of alternatives to job termination. What are the ethical implications of such a policy for employees who already have positions?

If the idea is to relocate the person, then transfer either at the same level of pay and benefits or at an increased level -- possibly as a form of compensatory justice -- seems clearly to be the most acceptable measure. Under our assumption that such a transfer is necessary, this policy would not seem morally objectionable. This is not to say, however, that such a policy would prove morally uncomplicated. As we saw in the case of Mark Dalton, competing moral claims by other employees can be at stake -- e.g., in a circumstance of scarcity of positions or if there is increased pay and benefits and someone else's seniority must be neglected in the assignment of positions. In short, just as abstract principles of justice seemed insufficient to handle Mark Dalton's problem, so they are likely to prove morally insufficient here.

This does not mean that there cannot be morally better and worse alternatives to job termination. The least acceptable programs would be coercive and the most acceptable would involve persuasive campaigns in which workers volunteer to be moved through some offered incentive. Here

an analogy might be considered to problems facing many businesses and universities over how to devise a system of incentives for early retirements, or if not early, then at least "timely" retirement. By presenting incentives, a voluntary retirement or a voluntary partial retirement has sometimes been achieved. Such schemes, many still in their infancy in the United States, are attempts to avoid mandatory retirement and to circumvent the problem of uncapping the mandatory retirement age. Just as one can expect that the more attractive the retirement plan, the higher the number of voluntary retirees, so one can presume that the more attractive the alternative positions, the attached benefits, and the relative safety of the work, the higher the number of employees will be who select the alternative positions.

Even mandatory or coercive policies may not be inconsistent with an employer's moral obligations to employees, depending on the view one takes of the competing obligations sketched above. To require transfer of position because of some overriding moral demand -- in effect the logic of position (1) sketched above -- is not to commit a moral wrong. What is to be hoped is that the situation can be avoided in which there is but one option, and that one coercive.

In conclusion, it deserves note that an absence of legal rights settles few moral matters. If an employee has no legal right against arbitrary dismissal, he or she may nonetheless have moral rights against arbitrary dismissal. Workers generally should have certain rights against unjust dismissal, even if there is a gap in the law. However, we must also recognize that both employers and employees have legitimate rights that should be protected in exclusion or dismissal cases and that

some mechanism should be found for adjudicating disputes. One proposal is a statute requiring, under some conditions, compulsory arbitration -- an appeal to procedural justice rather than to just results. But this may also be the most appropriate and workable appeal if our moral guides are insufficient to resolve or finally adjudicate such issues, as we have seen they are likely to be.

[Conclusion to be added, if desired.]

Notes

¹ This case report by Robert E. Stevenson is found in Hastings Center Report 10 (December 1980), p. 25.

² See, e.g., Philip Shabecoff, "Industry and Women Clash Over Hazards in the Workplace," The New York Times (January 3, 1981).

**ETHICAL ANALYSIS OF LEGISLATIVE OPTION:
COMPENSATION FOR REPRODUCTIVE DAMAGE
RESULTING FROM THE WORKPLACE**

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Ethical Analysis of Legislative Option:
Compensation for Reproductive Damage Resulting from the Workplace

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I. Introduction: Conceptual Analysis

In order to ensure maximum clarity, it is important to begin with a brief discussion of some of the major concepts in this ethical analysis.

A. Ethical categories. First, it is impossible to separate ethical analyses of legislative options from other considerations, such as scientific, political, legal, and economic ones. An ethical analysis of a legislative option cannot be "purely ethical," because it inevitably incorporates scientific data and presupposes certain political constraints (such as the system within which the legislation occurs). However, it is possible to concentrate on and to highlight ethical considerations, as this paper does.

Second, within our moral vocabulary, there are several possible ways to assess policies. Most often our society discusses policies in terms of moral rights and moral obligations. In contrast to some other societies, the language of rights is particularly important for our discourse. Rights are usually held to correlate with obligations so that if X has a right, Y has an obligation (and vice versa). But our moral vocabulary is richer than rights and obligations, even if they provide the bedrock for our debates about policies. For example, we might say that we ought to implement A rather than B as a policy because it would better reflect our character as society--say, our concern for the weak and vulnerable--even if we do not have an obligation to provide A and the weak and vulnerable do not have a right to A.

Third, it is important to distinguish moral rights from political-legal rights and to recognize that there may be arguments for political-legal rights, such as a right to compensation for reproductive harms incurred in the workplace, that do not presuppose moral rights. For example, the ideal of social compassion might support a political-legal entitlement to compensation for reproductive harms resulting from the workplace.

Fourth, what might an ethical analysis be expected to provide? This particular ethical analysis is designed to construct or reconstruct and assess major moral arguments for and against a policy of compensation for reproductive damage resulting from the workplace. Rarely,

in a complex debate about policies, will such an analysis provide conclusive evidence that a particular policy is morally obligatory -- that policy A, out of the whole range of policies, is morally required. But such an analysis may indicate the limits, boundaries, or range of morally acceptable alternatives, and it may even suggest a rough ranking of alternatives such that A is preferable to B, and B is preferable to C, even though all are morally acceptable. Sometimes in debates about policies, this distinction between ethical acceptability and ethical preferability is obscured. But there may be moral priorities within the range of morally acceptable alternatives.

Fifth, the moral principles that will be used in this analysis do not presuppose any particular ethical theory but have rather been drawn from the traditions that inform our public debate about legislation. These principles are already expressed in various public policies and would be recognized as relevant even when their weight is disputed. Among these principles are fairness, respect for persons (including their autonomy and privacy), compassion or beneficence, non-infliction of harm (nonmaleficence), and utility (maximizing welfare).

B. The Concepts of Compensation and Harm or Damage. Compensation means "making whole," but compensation for most harms or damages cannot be literal. It is, of course, possible to restore a person to his or her original financial condition if there has been harm or damage to that person's financial interests. But in most cases of physical harm or damage, compensation provides a monetary substitute in the effort to restore the person to his/her previous condition; compensation thus only figuratively "makes whole" because a financial award often cannot repair a non-financial harm.

There is concern about compensation, about "making whole," only when there has been some harm, which can be defined as a "setback to interests."¹ Reproductive damage can thus be viewed as a harm in the sense of a setback to a person's reproductive interests. Several terms for what happens to individuals who are harmed involve a directional metaphor and thus presuppose a starting point or baseline from which advance or retreat can be charted and measured; these include set back, defeat, thwart, and impede. As Joel Feinberg notes, "the interests that are affected for better or worse by events are already ongoing concerns with their own direction and momentum before the harming...events occur."² Reproductive interests are recognized as very important in most people's network of interests. They are both legitimate and weighty.

Obviously, a policy of compensation may not be the best way to protect people's legitimate and weighty interests. Since compensation usually cannot literally restore people to their original condition-- their condition prior to the harmful event that resulted in a setback to their

reproductive interests-- protection of reproductive interests might be better served by a policy of prevention. Nevertheless, a policy of compensation for reproductive harms need not be viewed as a replacement or as a substitute for other policies to prevent and reduce hazards and risks. It can rather be viewed as a "backup" policy for cases that slip through the "nets of prevention."

C. Distinction between the "natural lottery" and various "social lotteries." The idea of a "natural lottery" has been used, notably by John Rawls,³ to suggest that many of our attributes, such as our genetic makeup and our health, are largely random results of forces over which we have little or no control. If we "lose" in this lottery, we are in a sense "victims," but victims of impersonal "fate" rather than personal forces. In addition there is a "social lottery" or, perhaps better, several "social lotteries" that also have an impact on one's health. Social lotteries include socioeconomic circumstances and workplace. So far I have used the terms "social lottery" to suggest a parallel to the "natural lottery." But the differences are also important and call into question the appropriateness of the language of a "social lottery." These differences include degree of control and possibility of changing the outcome. Whatever language is used, the basic point is to distinguish "natural" sources of ill health from "social" sources, such as where one lives and where one works. Obviously, these natural and social sources may interact; for example, one may have a genetic trait that predisposes one to harm when there is contact with certain chemicals.

This conceptual point is significant for legislative options. It is important to determine whether arguments for a policy of compensation for reproductive damage resulting from the workplace are reducible to arguments for a political-legal right to health care and other compensation for the effects of the "natural lottery." As we will see, some moral arguments for compensation for reproductive damage resulting from the workplace are similar, if not identical, to those for a political-legal right to health care or compensation for any setbacks to health interests, whatever their source. It is important to determine (1) whether the relevant arguments for compensation for reproductive damage resulting from the workplace would apply with equal force to any setbacks to health interests, or (2) whether these arguments are limited to setbacks to health interests, including reproductive interests, that result from the workplace. If #1 is the case, then the reasons for concentrating on the workplace might have more to do with legislative strategy or tactics rather than with ethical analysis. Hence, an underlying question concerns what is distinctive and significant about ill health that results from the workplace.

II. Major Moral Arguments for a Policy of Compensation for Reproductive Damage Resulting from the Workplace

In considering first the moral arguments for and then the moral arguments against a policy of compensation, I will analyze those arguments in terms of moral principles already embedded in public policies and in public debates to see what they imply for such a policy. Since the issue of compensation for reproductive harms has not received much public debate, my analysis will necessarily involve construction of possible arguments. The first set of arguments (1 & 2) for a policy of compensation for reproductive damage resulting from the workplace does not presuppose that our society already has some compensation programs for injuries and ill health resulting from the workplace. These arguments would support compensation for reproductive damage even if we did not already have other compensation programs in other areas. However, by their very nature these arguments also imply support for other compensation programs in the workplace and perhaps even (except for 2b) imply support for a political-legal right to health care and to compensation for setbacks to health interests that result from the natural lottery, not simply from the workplace. By contrast, the second set of arguments (*3 & 4) hinges on society's commitment either to analogous policies or to goals that require these policies as means. Both sets of arguments appeal to principles that already appear in policies; but the first set of arguments does not presuppose existing policies of compensation for work-related injuries or ill health, while the second set of arguments presupposes those policies or goals that would require those policies as means. Some of these arguments may be combined in various ways; they are not all mutually exclusive.

A. The first set of arguments focuses on the nature of reproductive harm or damage in the workplace. Both arguments accept the premise that reproductive harms in the workplace are undeserved, but they differ in their interpretation of "undeserved." In its strong sense, "undeserved" implies, as Lance Stell notes, that "some sort of injustice (is) present, that someone has received more or less than his rightful share and that redress is morally appropriate...."⁴ In its weak sense, "undeserved" implies that "the moral category of desert does not apply to states of affairs of that type." Needs that are undeserved in the strong sense are unfair and require redress; needs that are undeserved in the weak sense may be unfortunate but they are not unfair. Argument # 1 employs the weak sense of undeserved, while argument # 2 employs the strong sense.

1. Reproductive harms in the workplace are undeserved and hence unfortunate (though not unfair) and evoke compassion. If such harms are unfortunate (but not also unfair), they may be the appropriate object of individual and social compassion. Other individuals, voluntary associations, and even the society ought to try to compensate individuals for those harms. This argument for compensation for reproductive damage in the workplace appeals to compassion -- or to such related notions as concern, care, and benevolence-- rather than fairness. A policy of compensating individuals for reproductive damage in the workplace should try to make them whole again in a literal or a figurative sense because such a policy expresses certain important values: the society ought to express, convey, and symbolize its concern for its members by compensating them for harms and damages. This argument emphasizes social interdependence as well as the symbolic significance of policies. According to one interpretation, the rationale of current workmen's compensation programs is "beneficence."⁵ Several points should be noted. If this first argument holds, it provides at best only a weak foundation for a policy of compensation for reproductive damage in the workplace. Damaged individuals do not have a moral right to such compensation based on a principle of fairness because their needs are only unfortunate and not also unfair. Furthermore, this argument appears also to apply with equal force to reproductive and other harms that result from other social forces (e.g., socio-economic conditions other than the workplace) and from the natural lottery, apart from the workplace. All of these harms are equally undeserved (in the weak sense); there is nothing special or unique about the workplace as a source of those harms.

2. Reproductive harms in the workplace are undeserved and hence unfortunate but also unfair. This argument make take one of two distinct forms: (a) it may focus on "cosmic unfairness," contending that there is a societal obligation based on fairness and not merely compassion to compensate for the results of various natural and social lotteries, or (b) it may focus on human agency and the unfairness of inflicting harm, of not preventing harm, or of letting workers bear the costs and burdens of harm when their work benefits society. It is difficult to mount a conclusive argument for 2a, but if it holds, it provides a strong foundation for a political-legal right to health care and to compensation for undeserved and hence unfair setbacks to health interests, whatever their cause. The fact that the workplace is the source of reproductive harms or other harms appears to be irrelevant.

By contrast, 2b focuses on human agency in reproductive damage in the workplace and contends that the principle of fairness may require compensation. When we inflict harm on others, apart from some special circumstances, we have a duty to repair the damage if we can. According to W.D. Ross, not only is there a general duty of justice, there is also a special

duty of reparation that arises from one's wrongful acts.⁶ Reparative action is morally required, not only to "repair" the damage (which often cannot be literally repaired) but also to acknowledge the injured person as a moral agent worthy of respect. What is "due" another person may depend on one's own previous wrongful acts, including negligent as well as intentional harms.

Where there is a duty on the part of employers and/or the society to prevent or to remove reproductive hazards in the workplace and that duty is not adequately discharged, fairness may require compensation for the harms incurred. For example, a company that fails to eliminate or reduce certain hazards may be legally and morally liable. Much of the argument will depend on whether there is a duty to prevent harms or remove hazards (not merely not to inflict harm). But even under the best circumstances, the employer and the society may discharge this duty as completely as they can while not totally eliminating the hazards (some of which may be unknown). In such a case what argument could support a societal duty of compensation? One possible argument would focus on the nature of the worker's enterprise and hold that it contributes to social welfare just as military service contributes to social welfare. Thus, the argument might go, just as the soldier is entitled to compensation for job-related harms, so the worker should be too. (See # 4 below)

B. The next set of arguments for a policy of compensation for reproductive damage in the workplace hinges, as I noted, on society's current commitments to analogous policies of compensation or to goals that support the use of compensation as a means to those goals.

3. The argument from moral precedent. Justice requires that we treat similar cases in a similar way. This requirement is widely recognized as the formal component of justice, as distinguished from various material criteria that determine what is due individuals and groups-- material criteria such as need, desert, and effort. Formal justice appears, for example, in the doctrine of legal precedent, which holds that similar cases should be treated similarly over time. According to the argument from moral precedent, our society already compensates individuals for many harms to life and health that result from the workplace, and formal justice thus requires that our policy include certain reproductive harms in the workplace as compensable harms. An assessment of this argument involves an examination of the putative moral precedent: our society's current policy of compensation for work-related injuries and ill health. But in addition it involves a careful examination of the similarities and dissimilarities between harms currently covered and reproductive harms in order to determine

whether the similarities or the dissimilarities are more relevant from a moral standpoint. Some points of controversy should be noted. First, although existing compensation programs provide medical benefits for job-related personal injuries, they often do not compensate for the loss of sexual or reproductive function because such a loss rarely disables the worker. However, some compensation programs do move beyond the disability standard and recognize the loss of bodily function as a compensable harm (e.g., sexual dysfunction and infertility or sterility).⁷ Second, it might be argued that the degree of uncertainty about causation and, in particular, the mixture of causal factors distinguish reproductive damage from many other harms in the workplace. But apart from clear-cut physical injuries, such as a broken leg, there is frequently a great deal of uncertainty about causation and a mixture of causal factors. Claims about uncertainty regarding causation could lead to a conclusion that covering reproductive damage is premature until the evidence is clearer. However, the evidence may be sufficiently clear for some reproductive harms from some causes but unclear for others. In part, then, the question for policy formation is whether the differences in degree of uncertainty about causation between reproductive harms and other harms are genuine and whether they are morally relevant and decisive. Another factor is the point of the policy and whether it is morally preferable to err on the side of inclusion or exclusion of harms for compensation. Obviously, such issues as feasibility, costs, and abuse will also need to be considered for all proposals for compensation for work-related harms.

4. The society's commitment to and pursuit of certain socially desirable goals, such as a safe and healthy work environment for its citizens and equal opportunity for women in the workplace, imply a policy of compensation for reproductive damage in the workplace as a means. This argument about ends and means may appear in a couple of different versions. In one version, acceptance of the value of the goals of a safe and healthy work environment for citizens and equal opportunity for women commits one to the means to realize those goals effectively and efficiently, but other premises are needed about the effectiveness and efficiency of a policy of compensation to realize those goals. It would be difficult to make the case that a policy of compensation, even if its main burden fell on employers, would realize the goals in question as effectively or as efficiently as some other policy of prevention of harm, for example, through regulation. Nevertheless, it is possible to argue for a policy of compensation as a backup means. Other approaches may be more effective and efficient in realizing the goals in question, but those who slip or fall through the nets of prevention should be compensated for their losses. In a somewhat different version of this argument, the emphasis falls on equity (rather than effectiveness and efficiency) in the distribution of the costs of realizing the goals. Compensation is viewed as a backup rather than a primary policy, and its justification is that it can more equitably distribute the costs of realizing important societal goals. The goals of a safe and healthy workplace and equal opportunity for women in the workplace are social, not merely individual, and some of the costs of realizing those goals through programs to reduce risks are distributed through the marketplace and taxation. As the Hastings Center paper states, "as a rule of thumb...equity requires that the cost of socially desirable goals be distributed as broadly as possible."⁸ One application of this rule of thumb might be that it would be more equitable to distribute the costs of reproductive harms across the society rather than let the victims bear those costs by themselves.

C. A final type of argument for a policy of compensation for reproductive damage in the workplace is utilitarian: it picks up and develops themes that have already appeared in other arguments (e.g., the first version of # 4).

5. This utilitarian argument is distinctive, however, in that it simply inquires whether on the whole a policy would maximize social welfare; its language and its technique are frequently cost-benefit analysis, whether formal or informal. Hence, it moves beyond the question of the effectiveness and efficiency of means to socially desirable goals (the first version of # 4) in order to inquire about a policy's overall impact, including its secondary and unintended consequences. Any adequate version of # 4 would necessarily include these consequences too. But in contrast to the second version of # 4, the utilitarian argument does not concern itself directly with the equity of the distribution of the costs of realizing socially desirable goals, because it concentrates on aggregate consequences rather than their distribution. In its most straightforward form, the utilitarian argument would have to show that the overall, aggregate consequences of a policy of compensation for reproductive harms in the workplace would be better than the consequences of a policy of noncompensation. Some of the considerations already introduced in other arguments would enter here, not as independent considerations (e.g., equity) but as expressions of individual preferences. For example, the intensity of the desires of workers not to have to bear the costs of their reproductive harms suffered in the workplace would have to be balanced against the intensity of the desires of individuals not to pay more for goods or to have their taxes increased. It should be noted that I am viewing the utilitarian argument as determining good and bad consequences by considering their impact on individual desires, wishes, and preferences, which have to be summed up. Someone might respond by noting that other utilitarian perspectives might include objective goods or values, not simply subjective preferences, and that one of those objective goods or values might be equity in the distribution of costs of realizing socially desirable goals. Or it might be noted that a rule utilitarian (in contrast to an act utilitarian of the sort I described above) could justify a rule of equity on the grounds that it over time would maximize social welfare, whether defined in subjective or objective terms. Either approach could make this fifth position much closer to the second version of # 4, and the debate would then hinge on what equity (viewed as an objective value or a rule) would require.

Within the utilitarian perspective as I have presented it in this argument, it is difficult to show that a policy of compensation for reproductive harms in the workplace would or would not maximize social welfare. Most often the utilitarian, or cost-benefit, argument emerges in the

following way for this sort of policy: a policy of compensation for reproductive harms in the workplace might be supported by arguments #1-4, but it might not be adopted if its costs greatly outweighed its benefits. For example, a policy to prevent injuries and death to the fetus that spent fifty million dollars for each fetal life saved would be legitimately questioned from the perspective of cost-benefit analysis. Any evaluation of a policy of compensation for reproductive harms in the workplace should include cost-benefit analysis, examining carefully the costs of the policy relative to its benefits, its effectiveness and efficiency (cf. the first version of #4), its feasibility, the possibility and probability of abuse, etc. Much of this evaluation will necessarily depend on empirical data regarding what will probably occur as a result of the policy.

III. Counterarguments to a Policy of Compensation for Reproductive Damage in the Workplace

Several counterarguments can be offered to arguments #1-5, which were presented in favor of the policy in the previous section; some qualifications and weaknesses in those arguments have already been noted.

A. One of the major counterarguments would be utilitarian; it would take the perspective presented above and contend that the policy does not pass a careful cost-benefit analysis. As I indicated, this debate hinges not only on the values that are invoked, whether objective or subjective, but on predictions about what will occur if the policy is or is not adopted. The utilitarian might contend that even if social compassion supports such a policy, its costs are too great. More evidence is needed about possible costs, etc.

B. The second type of counterargument contends that it is unfair to compensate those who suffer reproductive harm in the workplace (one of the so-called "social lotteries") while not compensating those who suffer reproductive harm because of the "natural lottery." Furthermore, this argument might note that these lotteries are mixed in particular cases since, for example, some people may be more sensitive to toxic substances than other people precisely because of the natural lottery. A response to this argument might appeal to the importance of the social goals identified in #4 above, perhaps emphasizing the centrality of a safe and healthy workplace to the overall wellbeing of the society and viewing a policy of compensation as a backup means.

C. The third type of counterargument focuses not on the consequences of the policy or on the fairness or unfairness of compensating for the harmful effects of workplace while not compensating for similar effects of the "natural lottery"; it focuses instead on the workers, contending that workers (1) assume the risks and/or (2) contribute to their own problems. Both versions of this argument frequently appear in opposition to governmental policies to reduce hazards in the workplace and may apply also to backup compensation policies.

1. The worker's assumption of risks. The idea of the assumption of risks (in this case of reproductive damage) is associated with the maxim *volenti non fit injuria*-- to one who consents there is no injury. Since it is clear that people may be harmed (i.e., suffer setbacks to their interests) even if they consent, it makes sense to interpret this maxim as holding that even though people may be harmed they are not wrongfully harmed if they voluntarily accept or assume the risks in the situation. Hence they have no claims against others, or the society, for compensation. At least two conditions have to be met before there is an assumption of risks. First, the worker must understand the risks involved. In view of the uncertainties that surround many chemicals and reproductive harms, it would be difficult to show that workers understand the risks, even with efforts to provide full disclosure. Second, the worker must act voluntarily. This condition is difficult to apply because of disagreements about whether workers have sufficient freedom to choose where they live, where they work, and what work they do. At any rate, however they are defined, both conditions of understanding and voluntariness have to be met before there is an assumption of risks by the workers. Where these conditions are met, it might be possible to argue that workers do not have a right to compensation and that society does not have an obligation to compensate them for work-related injuries and ill health, including reproductive damage. But, as I suggested earlier, arguments for a policy of compensation do not rest merely on rights and obligations, but also on other societal ideals (such as compassion) and other societal goals (such as a safe and healthy workplace and equality of opportunity for women). In any event, the fetus cannot be viewed as a voluntary participant in the workplace.

2. Workers' contributory negligence. If workers to a certain extent contribute to their own reproductive damage, it may not be morally appropriate or obligatory, according to this line of argument, to compensate them for their damage. This argument is sometimes viewed as "blaming the victim," since it holds that the harmed person in part brought the harm on himself or herself. For example, exposure to reproductive hazards in lifestyle and in the environment may interact synergistically with substances in the workplace. There are different types

of alleged contributory negligence: (a) worker's lifestyle and activities outside the workplace, and (b) worker's faults at work (e.g., failure to take adequate precautions even when recommended).

Unless it could be shown that all reproductive damage in the workplace presupposes an independent "contribution" by the worker, this argument would apply only to individual cases rather than to a policy of compensation as such. That is, it would suggest exceptions within a policy of compensation rather than opposing such a policy altogether. But there are practical and moral difficulties in recognizing such exceptions. The practical difficulties are greater than in some safety matters where there is a clearer relationship of cause and effect. In reproductive damage, it is frequently difficult to sort out the causative factors of the "natural lottery," environment, workplace, heredity, environmental pollution, lifestyle or some combination of these factors? In addition there are moral difficulties because privacy and autonomy set limits on what the society may do to develop detailed records of evidence of conduct that creates risks of reproductive harm. The prospect of "health police" violating privacy in order to obtain the necessary information is offensive to societal values.

IV. Moral Issues in Implementation

Some moral issues in implementation emerged in the previous section when I identified some moral and practical difficulties in recognizing exceptions based on contributory negligence in a policy of compensation for reproductive harms. There are some other important moral issues in implementation, particularly in the determination of the scope and limits of a policy of compensation. Obviously, the rationale of a policy of compensation (e.g., compassion or benevolence) will affect the way it is implemented (e.g., the level of the burden of proof).⁹ First, it is not easy to determine which reproductive harms should be covered. Should compensation be provided for medical care and treatment, which might in some cases overcome the harm, for pain and suffering, including mental anguish about inability to reproduce, for embryo/fetal damage? Second, what level of compensation should be provided and what should be the burden of proof of damage (e.g., proof that one did not have the damage prior to exposure in the workplace)? According to some commentators, it is relatively easy to qualify for workmen's compensation for physical injuries incurred in the workplace in part because the level of compensation is low. Third, how should uncertainty be resolved? For example, should the society not cover a particular reproductive harm until it has been proven to be caused by

the workplace, or should it cover that harm until it has been proven not to be caused by the workplace? Values always influence the way society sets the burden of proof and resolves uncertainty; linedrawing reflects values, not merely scientific evidence. Fourth, there are questions about the sources of funds in a policy of compensation. Should employers, employees, federal and/or state governments play the primary role in the provision of funds? Ultimately the citizen will be heavily involved as taxpayer or consumer, but there are questions about which is the preferable route for involvement. A major question is what role the federal government should have in discharging the societal responsibility of compensation, if such a responsibility is recognized on the basis of the arguments that have been discussed. In particular, should its role only be one of last resort, ensuring that the societal responsibility (if there is one) is being discharged?

In conclusion, there appear to be few, if any, conclusive moral arguments regarding a policy of compensation for reproductive damage in the workplace. Neither the arguments for nor the arguments against such a policy are utterly conclusive. Most rest on important moral principles that would be widely recognized in the society, but their applications to this policy are by no means clearcut and sometimes involve disputed empirical data. Nevertheless, this "ethical analysis" has been successful if it has indicated some of the strengths and weaknesses of the major types of moral arguments that are relevant to debates about this legislative option.

Notes

1. For one of the best recent discussions of harm, to which this discussion is heavily indebted, see Joel Feinberg, Harm to Others (New York: Oxford University Press, 1984). This paragraph draws freely on his language and formulations, especially in chapter 1.
2. Ibid., p. 53.
3. John Rawls, A Theory of Justice (Cambridge, Mass.: Harvard University Press, 1971). See also H. Tristram Engelhardt, Jr., "Shattuck Lecture-- Allocating Scarce Medical Resources and the Availability of Organ Transplantation," New England Journal of Medicine 311 (July 5, 1984): 66-71.
4. L. K. Stell, "Rawls on the Moral Importance of Natural Inequalities," The Personalist 59 (1978): 206-215.
5. Lisa Raines, "Liability for Reproductive Harm," OTA, September 1984, 8-12, *passim*.
6. W. D. Ross, The Right and the Good (Oxford: Clarendon Press, 1930), p. 21.
7. Lisa Raines, "Liability for Reproductive Harm."
8. The Hastings Center, "Reproductive Hazards in the Workplace: The Moral Issues," prepared for OTA, p. 21.
9. Lisa Raines, "Liability for Reproductive Harm."

ETHICS, RISK ASSESSMENT AND REPRODUCTIVE HAZARDS

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Ethics, Risk Assessment and Reproductive Hazards

Inevitably, whatever choices are made about whether, and how, to regulate reproductive hazards those decisions will have significant ethical implications. Among the questions answered explicitly or implicitly in risk management decisions are: (1) What risks are acceptable? (2) Who shall bear them? and (3) Who shall be given the power to answer (1) and (2)?

Difficult as these questions are, they are made more so by two kinds of uncertainties. First are uncertainties about the facts of the matter--about the nature, existence and extent of the risks. Second are uncertainties about the morality of the problem--about the relevance of ethical principles, and about the proper balance that ought to be struck when principles are in conflict.

In this section of the report, our intention is to clarify the relevance of moral principles to the regulatory problems raised by workplace reproductive hazards, and to suggest, where possible, how a balance may be achieved.

The Belmont Report¹ lays out a useful framework of three moral principles relevant to the ethics of research with human subjects; these principles are relevant as well to the issue of reproductive hazards in the workplace. The principles are (1) respect for persons, (2) beneficence, and (3) justice. We will discuss them in turn, and conclude with a consideration of the value dimensions of risk assessment for reproductive hazards at work in light of the three moral principles.

Respect for Persons

The principle of respect for persons has important application in reproductive hazards for at least two parties--the workers exposed to the hazards, and the offspring and potential offspring of those workers.

Workers. Respect for persons requires us to encourage fully informed, voluntary and uncoerced choice by individuals. In the context of the workplace, this would make it possible for workers to make informed and voluntary choices about whether to accept reproductive hazards.

One condition, then, of respect for persons is that the choices workers make should be fully informed. This implies a duty on the part of those in a position to inform workers--principally employers and the government--to disclose information they may have about reproductive hazards in the workplace. A number of practical questions arise here: Do you disclose every conceivable risk, no matter how poorly established or improbable? Is it sufficient to give the information to workers, or is there a duty to see that the information is comprehended?

Both of these questions have been asked about disclosure of risks in research and in medical treatment. The widely accepted answer to the first is to use a "reasonable person" standard: you should disclose those risks that a reasonable person would want to know. This leaves out very improbable risks, although serious but not well-researched risks might have to be disclosed under the "reasonable person" standard. Reasonableness is again crucial in the answer to the second question: a reasonable effort must be made to ensure that the person has understood the risk. This includes eliciting what the person thinks he or she has been told, and attempting to correct any misunderstandings therein revealed.

A second possible implication of the ethical requirement that workers be informed of hazards might be a duty to seek out information that is likely to be relevant to a reasonable person's decision to accept hazardous employment. For example, it might be literally true for an employer to say that there is "no scientific evidence" that a certain chemical is hazardous to reproductive capacity in humans. But a disclaimer like that is disingenuous if research has not been done on the question. It would also leave open the possibility that the chemical has been found to be harmful in animals, or that some suspicious cases have been found in humans, but that no relationship has been established yet by epidemiological research.

Whether an ethical duty to seek out information exists on the part of employers or government is not well established. Nor is the scope of such a duty well defined. Should it apply to all new chemicals, or only those for which some strong reason exists to suspect that it poses a hazard to human reproduction--e.g., that it is structurally very similar to another chemical known to be a reproductive hazard? The "duty to seek out information" is a plausible extension of the duty to inform.

Honoring the principle of respect for persons requires not merely informing workers, but also ensuring that their choice may be made voluntarily and without coercion. Unfortunately, it is not a perfect world and rarely can decisions about employment be made purely voluntary and without financial or other possibly coercive pressures. People need to work for financial, and often for psychological reasons as well. Appreciating the ever-present constraints on choice with respect to employment does not vitiate the duty to foster voluntary choice, but it

compels us to settle for less than absolutely free choice, and it focuses our attention on the factors that make a choice more or less voluntary.

Practically speaking there are a multitude of factors that influence the "voluntariness" of a choice whether to accept hazardous employment. A partial list would include what alternatives the person had: national and local unemployment rates; the worker's qualifications; local employment options (whether, for example, the worker lives in a large city with many different industries, or a small, isolated one-company town). It would also take into account the general financial status and needs of the worker and his or her family as well as the disincentives for seeking work elsewhere (e.g., the emotional and financial costs of moving to another community, or rules governing pension vesting with one's current employer).

Respecting persons in this context, then, would involve informing workers about hazards, and attending carefully to the voluntariness of the choices they have in practice, and not merely in principle. It would, for example, lead one to prefer a regulatory policy that provided alternatives to workers over one that prescribed an all-or-none choice. Reassignment with rate and seniority retention would be preferable, under this principle, to demotion or firing of workers.

Workers' Offspring. The principle of respect for persons offers little guidance about our duties towards the offspring and potential offspring of workers. The difficulty lies in the fact that fetuses, infants, and even children are not rational, "autonomous" beings, although they are potentially so. As a moral principle, respect for persons has its clearest application in cases where the free, informed choice of rational adults is in jeopardy. In general, the interests of fetuses, infants and children

fall more naturally under the principle of beneficence, to be discussed next. The most that can be said about fetuses under the respect for persons principle is that if they are to be brought to term, their capacity for autonomous thought and action in later life should not be impaired.

Beneficence

The principle of beneficence requires us to avoid harming persons (this is sometimes referred to as "nonmaleficence") and to do what is, on balance, in their interests. There are at least three relationships in the workplace reproductive hazards context where beneficence comes into play: employers' duty to workers; workers' duty to offspring; and employers' duty to offspring.

Employers' Duty to Workers. Can it be said that employers have any duty to act beneficently towards employees? Both the specific and the general legal duties imposed on employers under the Occupational Safety and Health Act strongly imply that there is a corresponding ethical duty to avoid exposing workers to harm. It seems reasonable to view the OSH Act as the statutory codification of a growing social conviction that the duty exists on the moral level. If we may conclude that a moral duty exists, what is the scope of that duty?

There are limits to the duty to look after employee's health. For one thing, it does not require employers to look after all of an employee's health risks, only those imposed or perhaps aggravated by conditions at work. As in current health promotion programs now active in many companies, employers may choose to concern themselves with workers' health more broadly, for example through programs designed to control smoking, or alcohol or drug abuse, but they are not required to do so.

Also, beneficence cannot require what cannot be done. Complete elimination of all risks is not ethically required when it is not practically possible.

But, even with these limitations, the principle of beneficence clearly applies to the case of employers' duties to avoid harm to workers' reproductive capacities and outcomes. Workers are harmed directly when their reproductive capacities are adversely affected. They are harmed indirectly when a workplace exposure leads to the loss of a child, or to the birth of a damaged child. The child is harmed directly in this case, but the parent is harmed as well. That damage to one's child is a harm to the parent has been given legal confirmation through successful "wrongful birth" suits. It seems reasonable to conclude that employers' have a duty, derived from the principle of beneficence, to avoid harm to workers' through damaging their reproductive capacities or injuring their offspring.

Workers' Duty to Their Offspring. Do parents have any duties to their offspring during the period of fetal development? What scope could such duties have? What are the implications of these duties, if they exist, for the workplace context?

When there is the intention to bring a fetus to term, then parents may well have certain duties to that child-to-be even while it is a fetus.² An example is useful in illustrating this point. A person who gives drugs to a pregnant woman, knowing that the drug will almost certainly cause gross physical or neurological abnormalities in the fetus that will persist throughout life has harmed that fetus. Most people would agree that the child which the fetus will become has been harmed by that individual as surely as if the injury had been done after the child's

birth. If there is a duty to avoid harming a child, then there is a corresponding duty to avoid harming the fetus which will develop into that child. We typically think that a parent has a duty not to do grievous and irreversible harm to his or her child, and so it is reasonable to think that same parent has a similar duty not to harm the same child before birth.

The situation is much less clear when there is an intention to abort the fetus. It seems implausible to say that parents have a duty not to harm a fetus when we are not prepared to say that they may not kill it. This raises the larger question of the moral justification of abortion, which is well beyond the scope of this report.

If, however, we agree that there is a duty to the wanted child, we have yet to set the boundaries of that duty. At their upper bound, such duties might equal but could not exceed the duties we owe to newborn infants. This is helpful to note because it permits us to deal with more familiar issues. In particular, it points up a limitation to our duties towards wanted fetuses: beneficence requires us to do what is best for a person, on balance. It is not a duty to avoid any and all possible harms to the fetus, when that same action might also gain some benefits for the fetus and avoid other harms. Practically, a parent might continue to work under conditions of mild or low probability of harm to a fetus, if the benefits for the fetus outweighed the likelihood of harm. Benefits could reasonably include those things made possible by the income and employment benefits derived from working that permit the parent-to-be to secure adequate prenatal health care, better housing, food, and clothing for the child. Establishing that worker-parents may have a duty of beneficence towards their offspring, even as wanted fetuses, does not

automatically mean that they must surrender their jobs, at least not when the sum total of benefits to their children-to-be might be negative.

From the standpoint of regulation, the importance of this point may be to show that a parent who chooses to continue working in a mildly hazardous workplace is not necessarily violating any duty of beneficence to that parent's unborn child.

Employers' Duty to Workers' Offspring. Do employers have a duty of beneficence towards the not-yet-born children of their workers? There is no such duty in statutory law. There is no clear relationship between the parent's employer and the fetus. Whatever duty might exist, it would almost certainly be less strong than the employer's duty to the worker-parent or the worker-parent's duty to the fetus. Nevertheless, it may be reasonable to think that a moral duty exists not to do gratuitous or easily avoidable harm to the fetus. Perhaps a case will illustrate the point.

In the possible, though very unlikely, circumstance that a particular workplace exposure was quite harmless to the workers, but caused severe birth defects in fetuses carried by the workers, we would think that avoiding harm to the fetus was a morally significant reason to alter the exposure. Furthermore, we would probably judge that if the danger to the fetus were known in advance, then the employer had violated a moral duty not to do avoidable harm to the fetus.

The scope of the duty employers might have to their workers' fetuses is difficult to determine because of considerations that point in opposite directions. On the one hand, the lack of a clear relationship between employer and fetus, in combination with ambiguities in the moral status of fetuses suggest that the duty is more narrow and less

compelling than the employer's duty to workers. But on the other hand, the fact that under no circumstances can the fetus be said to have "consented" to be exposed to hazards, while the worker-parent's exposure is to some degree voluntary would lead us to erect a higher standard of protection for the fetus. What this underscores is the interaction of the principles of respect for persons and beneficence: our duty to protect persons from harm may be in conflict with our duty to permit them maximum latitude for free and informed choice. Duties of both kinds are very important, but they may conflict at times.

Whatever duty may exist between employer and fetus, there is still the question of how it may apply in practice. There is a familiar doctrine in bioethics, in family law and in medical decision making for children, the mentally ill, the retarded, and other non-competent persons. The doctrine is known as the "best interest" standard, and it urges that whatever decision is made be in the person's best interest.

Unless there is compelling evidence to the contrary, we prefer to leave the judgment of what is in the child's best interest to the parents. We believe they are well situated to decide where the child's interest lies; we further believe that they will be motivated by concern for the child; and finally we believe that, on balance, it is better for the autonomy of the family to be preserved than to have others constantly meddling in the family's most intimate decisions.

It would be ironic if, on the one hand, we permit wide parental discretion in health care decisions for their infant or child, yet on the other deny parents the authority to make decisions affecting the health and well-being of unborn children by denying them work that might have some effect on the fetuses subsequent development. This does not mean

that parents should have absolute sovereignty over the life and death of their children, or that they can inflict with impunity any lifelong harms on their yet-to-be-born child. Courts can and have regularly intervened when parents, even with deeply grounded religious motives, have chosen a course of action that endangers the life of their child. But we have set a fairly high threshold of intervention: anything posing less than a clear and highly probable threat to life or health will not trigger intervention.

This analysis suggests that regulators should seek to preserve parental autonomy, unless there is clear evidence of a highly probable threat to the infant-to-be's health or life. Policies designed to protect fetuses should grant substantial leeway to worker-parents. Information and education campaigns, or policies that provide for transfer without penalties are much preferable to policies requiring involuntary transfer or job termination. It is highly unlikely that a worker-parent, informed of a grave risk to his or her yet-to-be-born child's health and given alternative employment without loss of wages or seniority, would nonetheless insist on remaining at the workplace and thereby exposing the fetus to serious hazard. In such a case, involuntary transfer or termination might be a morally defensible choice. But it is difficult to imagine a potential parent voluntarily risking their wanted child's health in this manner.

Justice

Justice as an ethical principle is relevant to the regulation of reproductive hazards in two ways: in the differential impact on male and female workers, and in the allocation of burdens.

Differential Impacts on Male and Female Workers. In its most basic formulation, the principle of justice requires that like cases be treated alike. On the face of it, policies that have a much heavier negative impact on workers of one sex raise doubts about whether they are just. At minimum, policies with differential impact require justification, which can take the form of showing relevant differences--demonstrating that the cases are not alike in important respects.

In the case of workplace reproductive hazards, "fetal protection policies" have typically targeted women who are much more likely to be removed from or denied jobs on the grounds that reproductive hazards exist. With the background of employment discrimination against women, it is all the more important to scrutinize policies with a disproportionate impact on women. The history of discrimination increases the burden of proof for those who propose such policies. Unless it can be shown that such policies are based on relevant and important differences, they must be regarded as unjust.

If, for example, a substance were shown to have an effect on both men's and women's reproductive capacities, there would be no grounds for selective excluding women from jobs involving exposures to the substance. There is good reason to redesign the workplace or the production process so that neither men nor women are exposed to dangerous levels of the substance, but no reason to expose men alone.

If a substance were shown to affect only one sex, that could be a relevant difference, and justice would not be violated by a policy affecting workers of that sex. This assumes that there is good scientific evidence that the presumably unaffected sex is in fact unaffected. If there are no competent and statistically powerful studies confirming that

there are no effects on the other sex, then a relevant difference has not been shown and justice has not been satisfied. This is particularly relevant for the regulation of reproductive hazards since so much of the research has focussed on women alone, and therefore effects in men are as likely to be uninvestigated as nonexistent.

Does the obvious fact that women are the ones who actually carry the fetus constitute a relevant difference? It may, but only subject to the reservations mentioned earlier in the discussions of benevolence and respect for persons. Respect for persons and benevolence lead us to inform workers fully about the reproductive hazards to which they may be exposed, and to permit considerable discretion to men and women alike in deciding whether to accept work that may pose a reproductive hazard.

Allocating Burdens. Once the existence of a hazard is established, the primary task of regulation is to provide for its control. From the viewpoint of justice, this entails allocating burdens among all affected parties including employers, workers and consumers. This is no single formulation of the principle of justice which is universally accepted in the contemporary United States, and which can be unambiguously translated into decisions about the allocation of burdens. In general, we believe these issues are best decided through full public debate and Congressional disposition. However, there may be some useful clarification stemming from the most general formulation of justice--treat like cases alike--and a distinction between the two principle burdens to be allocated--financial burdens and health burdens.

For the most part, we are inclined to think that serious blows to a person's health are greater harms to that person's interests than are financial burdens, particularly when they are spread over a large number

of individuals, with little impact on each. If the blow to health were mild, and the financial loss catastrophic, we could reasonably judge the financial loss more serious. But in the great majority of cases, especially where the health of individuals is weighed against financial burdens which will be widely spread among stockholders and consumers, justice would favor avoiding the catastrophic health burden on the few in favor of the relatively insignificant financial loss to the many. Harms to health are more likely to be irreversible than monetary loss. And health may be what philosophers call "a primary good"--something without which we cannot even pursue the things that constitute the "good life."³ Justice, then, would involve distributing the burdens widely among all those benefiting from the enterprise, and in such a way that no one is deprived of their opportunity goods.

The Concept of "Acceptable Risk"

Determining what risks a society will accept is a difficult task, demanding a complex evaluation of factual evidence and ethical values. In practice, a distinction is usually made between "risk assessment," or the evaluation of factual evidence about the nature and significance of a risk, and "risk management," which combines evidence comparing alternatives for controlling risks with judgments about the ethical implications of alternative control and regulatory strategies. While this distinction is valuable, it may lead us to underestimate the moral components of the supposedly value-neutral process of risk assessment. Both risk management and risk assessment incorporate significant value-laden features at critical junctures.

Risk Management. Risk management is explicitly value-laden: it is the choice as to who shall bear the burdens of risk and risk control. The preceding discussion of respect for persons, beneficence and justice was an attempt to describe and analyze the most important moral issues underlying the choice of how to manage the risks of workplace reproductive hazards. But not everyone believes that an analysis of ethical implications is necessary.

There are some for whom the concept of "acceptable risk" is largely an empirical issue: Those risks that have been accepted are acceptable. For people who believe this, there is no effort to use the concept of acceptability as a normative and critical concept with which to judge law policies or practices.

Despite the limitations of an exclusively empirical approach there are important functions that it may serve. For example, it would be important to discover that the concept of acceptable risk has different meanings for differentially affected parties in the workplace. Such an approach might uncover sharp conflicts between the views of women, men, employers and policy-makers regarding the level of risk that was tolerable. Furthermore, it might find that what appears to have been accepted is described more accurately as acquiesced to as an unavoidable burden.

But the empirical, noncritical concept of acceptable risk is ultimately limiting in that it fails to permit the moral evaluation of policies, laws and practices. From an ethical point of view, the concept of acceptable risk must be used to determine whether the reproductive hazards associated with workplace exposure are tolerable from the standpoint of respect for persons, beneficence and justice.

Problems of Risk Assessment. In contrast to the morally freighted task of risk management, risk assessment would appear to be relatively unproblematical. Yet as suggested above, the situation is not so simple. Scientists and others asked to make assessments are often required to make judgments based upon data of highly variable quality. At times the data available does not bear directly on the questions policy makers must ask. As a consequence, the interpretation of data may become contested. Parties with interests at stake may each seek to press their interpretations upon ambiguous findings. Scientists are not wholly immune to such pressures. Because those locked in contest each claim to be basing their arguments on scientific facts the lay public and policymakers are often subjected to what for many is an unseemly and perplexing battle of experts.

The question here is how one allocates the burden of uncertainty. When conclusive evidence is absent, should we err on the side of describing a substance as hazardous when it might not be harmful, and as a consequence raise costs without increasing protection? Or should we err in the direction of waiting for firm proof, and take the chance that workers will be harmed? It is important to note here is that such decisions are not typically considered judgments regarding the acceptability of risk. Rather they involve assessments regarding the very presence of risk. Nevertheless, given the contestability of such decisions, it would be impossible to preclude the involvement of political and moral factors. Inevitably then, even at the level of risk assessment, respect for persons, beneficence and justice come into play.

The complex interaction between values and empirical evidence in risk assessment is clearly demonstrated in the case of reproductive

hazards in the workplace. At present there is much more evidence available on reproductive harms to women and to the fetus via maternal exposure than there is regarding the reproductive vulnerability of men and on the paternal contribution to negative reproductive outcomes. In part this may be a consequence of the culturally defined research agenda into reproductive hazards, in part a consequence of the greater ease with which it is possible to do research on the maternal contribution to negative reproductive outcomes. A superficial analysis of current evidence would seem to indicate that reproductive hazards in the workplace are primarily a "woman's problem," when in fact there may be no evidence in men either way.

Value considerations may have affected our understanding of the reproductive risks associated with work in another way. When concern has emerged about the reproductive capacity of women workers, it has tended to focus on situations where females have entered a traditionally male labor market, chemical manufacturing for example, rather than in the health care sector where women provide the majority of the labor force. Yet it is well known that exposure to pathogenic agents represent a significant risk to reproductive health and fetal viability.

Even the most superficially value-neutral dimension of the reproductive hazards issue may be affected by value considerations. This fact underscores the importance of incorporating ethical perspectives in technology assessments and policy analyses. From the effort to understand the nature of the risks involved to the creation of public policies responsive to the needs of workers, the interests of their

progeny, the concern of employers, and the welfare of society, it is inevitable that moral issues will be at center stage.

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Footnotes

1. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, "Belmont Report: Ethical Principles and Guidelines for Research Involving Human Subjects." Federal Register, vol. 44, no. 76 (April 18, 1979), pp. 23192-23197.
2. See e.g., John A. Robertson, "The Right to Procreate and in Utero Fetal Therapy." Journal of Legal Medicine, vol. 3, no. 3, 1982, pp. 333-366.
3. John Rawls, in A Theory of Justice used the concept of "primary goods" to describe those goods that all rational persons would want (see pp. 62, 90-95). Norman Daniels develops the idea of health care as fundamental for equal opportunity in "Health Care Needs and Distributive Justice," in In Search of Equity: Health Care Needs and the Health Care System. R. Bayer, A.L. Caplan, and N. Daniels, eds. New York: Plenum, 1983.